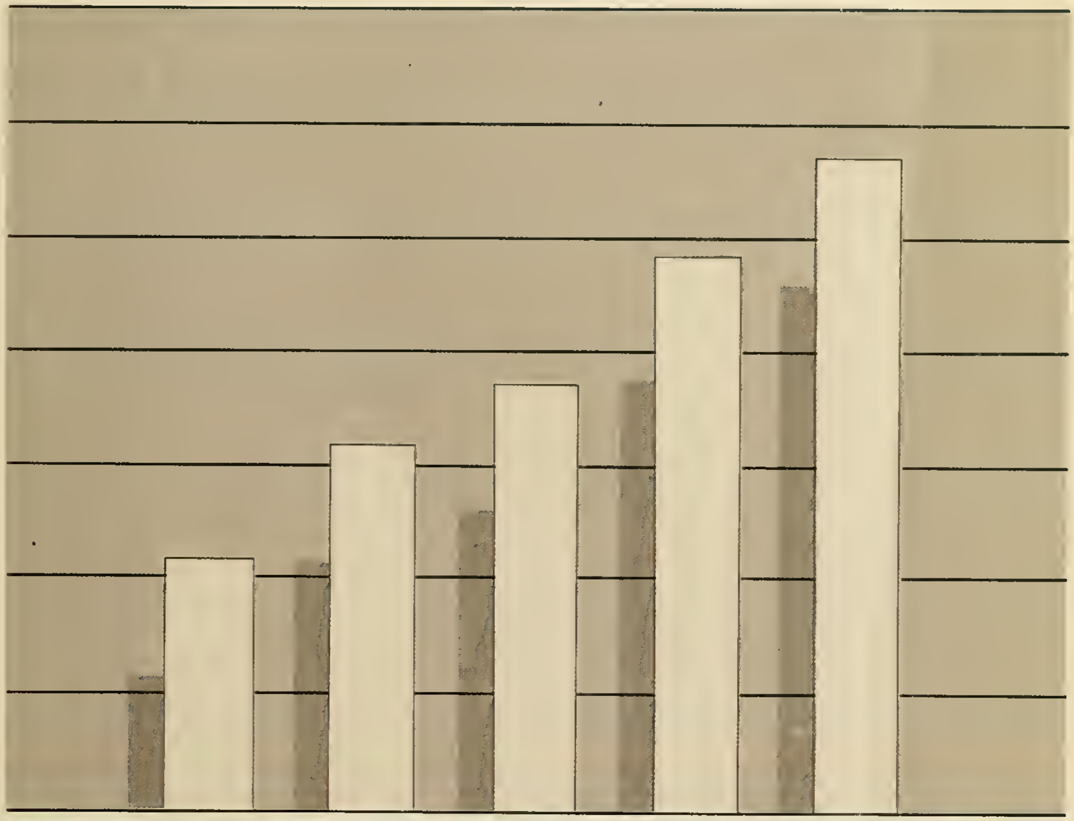
PHYSICIAN PAYMENT REVIEW COMMISSION



Annual Report to Congress 1989

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PHYSICIAN PAYMENT REVIEW COMMISSION

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Annual Report to Congress 1989

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PREFACE

The Physician Payment Review Commission was established by Congress in 1986 (Public Law 99-272) to advise it on reforms in Medicare policies for paying physicians. The Commission began its work in November 1986 and has submitted a report to Congress in March of each year since then. Its work has focused on both changes in the methods used to pay physicians for services to Medicare beneficiaries and policies to slow the growth in spending for those services. Coming from very different backgrounds and perspectives, the 13 Commissioners work to reach a consensus on the policies they recommend.

In developing its recommendations, the Commission plays several roles. It provides independent expert advice to the Congress and the Secretary of Health and Human Services. It provides a forum for groups representing beneficiaries, physicians and others affected by physician payment policy to participate in the decision-making process. And it conducts the analytical work that provides the basis for policy decisions and the technical work necessary to implement changes adopted by Congress.

In this report, the Commission presents its proposals for a Medicare Fee Schedule and policies to reduce the rate of increase in program costs and to improve the quality of care to Medicare beneficiaries. The work on this report began more than two years ago when the Commission called for a fee schedule for Medicare and set out a plan for its development. Last year's report to Congress was a progress report on the Commission's work, specifying the conceptual basis for the fee schedule, reporting on technical issues in its design, and presenting background on important policy issues the Commission would soon take up, such as assignment policy and expenditure targets.

The Commission could not have accomplished its goal of submitting a comprehensive set of proposals to Congress this year without the advice and assistance of many people. Lucian Leape and Susan Marquis made major contributions to the Commission's work on practice guidelines, coding and simulations. Lynn Etheredge, Arthur Lerner, Thomas Rice and Victor Rodwin prepared background papers and presented them at Commission meetings during the past year. Robert Brook, David Eddy, Lawrence Lewin and Jane Erickson prepared background papers for the Commission's conference on practice guidelines. The Commission staff also drew on the expertise of Robert Berenson and David Helms in several projects. Special thanks go to Marilyn Field, Jeanne Hoffner and Kristen Gooch for their work on the Commission staff. David Riley's editing of the report chapters was a help to all the staff.

The Commission was able to expand its analytical work through contracts with organizations for programming services, survey research, and data analysis. Social and Scientific Systems, Inc., and especially Jansen Davis and Paul Menick, played a heroic role in the Commission's simulations of fee schedule options and other data analysis projects. Two national surveys, one of beneficiaries by Mathematica Policy Research, Inc. and one of physicians by Westat, Inc. and Project Hope, were conducted for the Commission. Several other studies by The Circle, Inc., Levine Associates and the Medical Group Management Association provided data and analysis for several chapters of the report. Staff of the American Medical Association assisted in sampling for the Commission surveys and provided data, information and valuable comments on a number of projects. The Health Industry Manufacturers Association and the National Electrical Manufacturers' Association assisted the Commission in gathering cost information on diagnostic equipment.

The Commission sought the input of physicians, beneficiaries, Medicare carriers and other experts on physician payment issues in the past year. It benefitted from many organizations presenting testimony before it and commenting on chapters of this report. The Commission's work on defining a policy for surgical global services could not have been accomplished without assistance from the surgical specialty societies, the Blue Cross and Blue Shield Association, the Health Insurance Association of America and the consensus panel of surgeons and medical directors of carriers who worked over many months to develop that policy. The Commission also relied heavily on the expertise of participants in a conference on practice guidelines and on information on carrier coding policies provided by staffs of Medicare carriers throughout the country.

Assistance came in many forms from staff of the Health Care Financing Administration and other agencies of the Department of Health and Human Services, the Congress, the Office of Technology Assessment, the Congressional Budget Office, the Congressional Research Service, the General Accounting Office and the Prospective Payment Assessment Commission.

In a report that covers such a broad range of issues, it is difficult to acknowledge everyone who contributed to it. At the same time, we wanted to mention those who were particularly helpful to the staff and Commissioners: Ross Anthony, Stephen Bandeian, Marc Berk, James Bethel, Brian Biles, Peter Bouxsein, Max Buffington, Ira Burney, Nancy Carlton, Sandra Christensen, Ann Ciemnecki, Joseph Cole, Joel Cooke, Linda Demlo, Ronald Evens, Charles Fisher, Alissa Fox, Peter Fox, Barbara Gagel, David Gans, Marsha Gold, Lewis Goldblatt, Irving Goldstein, George Greenberg, Thomas Gustafson, Jean Harris, Edward Hughes, Kathryn Hyer, Nicholas Jewell, Donald Johnson, Charles Kahn, Robert Kaplan, Bruce Kelly, Gene Kelly, Andrew Koski, Joseph Kutzin, Jack Langenbrunner, Kathryn Langwell, Daniel Levine, Hilary Lewis, Steven Lieberman, Lisa Looper, Leo Marcus, William Marder, James Margolis, Peter McMenamin, Penny Mohr, Earl Morrissey, Lyle Nelson, Marilyn Newton, Robert Otten, Bernard Patashnik, Peter Pfeiffer, Ronald Prihoda, James Reuter, Gerald Riley, Gene Roback, Gloria Ruby, George Schieber, Delilah Schmitt, Steven Schroeder, Mark Segal, Phyllis Torda, Gordon Trapnell, Charles Waldhauser, Marina Weiss, W. Pete Welch, Howard West, Phyllis Williams, Charles Wolters, Deborah Zimmerman and Stephen Zuckerman.

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SUMMARY AND RECOMMENDATIONS

The Physician Payment Review Commission has developed a comprehensive set of proposals to rationalize the pattern of payments to physicians by Medicare and to slow the rate of increase in program costs so that they are affordable to beneficiaries and taxpayers. The Commission's proposals respond to its mandate from Congress to suggest new ways to determine relative payments for physicians' services and provide equitable payments among geographic areas; to protect beneficiary access to care; and to slow the rate of increase in program costs.

To rationalize the pattern of payments by Medicare, the Commission proposes a Medicare Fee Schedule based primarily on resource costs to be enacted this year, with a transitional stage to begin in 1990. To limit beneficiary financial liability, the Commission recommends limits on balance billing. To control the growth in Medicare expenditures for physicians' services, it proposes expenditure targets, increased research on the effectiveness of medical services, the development of practice guidelines, and improvements in utilization and quality review.

Since its inception in 1986, the Commission has been studying the pattern of Medicare payments to physicians. The more it learns, the stronger its conviction becomes that the pattern of relative payments based on screens for "customary, prevailing, and reasonable" (CPR) charges has serious problems. It conforms neither to patterns that would promote efficiency in medical practice nor to those that one might infer to be fair among physicians or among beneficiaries. Rationalizing the pattern of payment is a key part of reforming Medicare.

Studies by the Commission and others have shown that the current pattern of payments departs substantially from the actual resource costs of providing physician services. For example, physicians systematically receive less payment for evaluation and management services in relation to physician time and effort than they receive for invasive and imaging procedures. The variation in payment patterns from locality to locality appears to be erratic in that it does not correspond to variations in practice costs. A fee schedule would permit changes in payments for both relative values and geographic areas that would more closely approximate differences in resource costs. A fee schedule would also be simpler and less expensive to administer, and it would make the program easier to understand for both beneficiaries and physicians.

Much of the rapid increase in Medicare outlays for physicians' services reflects rising utilization of services per enrollee. From 1980 to 1988, physician services per enrollee increased by 7 percent per year.[1] But the evidence suggests that many services delivered to patients have little or no value; expert consensus regards medical benefits as either negligible or smaller than the medical risks involved. The Commission believes that the most promising way to control program costs is to reduce the provision of such services.

To do this, the medical profession must know which services can be expected to benefit the patient and have the means of identifying and selectively reducing those of little or no benefit. The foundation of this approach is to increase knowledge of the effectiveness and appropriateness of medical practices and to increase the use of that knowledge by physicians, patients, managers of care, reviewers, and regulators.

Over time, a Medicare fee schedule might contribute to a reduction in the growth of spending through a more rational set of incentives to physicians and through improvements in coding. Reduction in the excessive profitability of some services and procedures might reduce their use, but this could be offset by the reaction to increases in payments for other services. In the short run, the effects of a fee schedule on volume are uncertain, and it would not be wise to count on a fee schedule alone to address the problem of inappropriate services.

The Commission recommends three policies to slow increases in expenditures and to reduce the provision of inappropriate services: 1) giving physicians collective incentives to slow growth in expenditures through expenditure targets, 2) increasing research on the effectiveness of care and developing and disseminating practice guidelines, and 3) improving utilization and quality review by carriers and peer review organizations (PROs).

These proposals are outlined below. The discussion is organized into a section covering all aspects of the Medicare Fee Schedule and sections on other policy areas: expenditure targets, effectiveness research and practice guidelines, utilization review by carriers and PROs, strengthening the administrative infrastructure for payment reform, and risk-sharing arrangements in prepaid health plans.

THE MEDICARE FEE SCHEDULE

> **RECOMMENDATION: The current CPR payment system should be replaced with a Medicare Fee Schedule (MFS) based primarily on the resource costs incurred in efficient medical practice.**

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[1] Evidence suggests that some of the measured increase in services per enrollee reflects changes in the use of codes by physicians.

A fee schedule consists of a relative value scale (RVS), which indicates what each service or procedure is to be paid relative to others; a conversion factor, which translates the relative values into dollar amounts of payment; a geographic multiplier, which indicates how the payment for a service is to vary from one locality to another; and, in some cases, specialty multipliers. A fee schedule also requires a policy regarding assignment and balance bills, a transition, a process for updating all aspects of it, and a system for monitoring effects.

Relative Value Scale

An RVS that is based on resource costs must reflect both the physician work (time and intensity of effort) and practice costs (costs of nonphysician inputs) of each service. It cannot be specified without a system of uniform and well-specified service codes. The Commission has developed specifications for each of these components of the Medicare Fee Schedule.

Physician Work. The Commission has carefully studied the research by Professor William Hsiao and his colleagues at Harvard University aimed at developing an RVS. Its staff has examined the methodology and reanalyzed much of the raw data collected in the study. It has consulted with outside experts. It has heard testimony from many organizations representing physicians, beneficiaries, and others, most of which have had their own experts and leaders examine the study. While this process has identified many parts of the study that will have to be revised and expanded, the Commission has concluded that the basic methodology of the study is sound.

> **RECOMMENDATION: The Hsiao study's estimates of physician time and effort should be used as the initial basis for the physician work component of the RVS in the Medicare Fee Schedule.**

Hsiao has defined physician work as time, mental effort and judgment, technical skill, physical effort, and stress from iatrogenic risk. His team has estimated work by surveying a sample of practicing physicians in each specialty on the time and work involved in performing various services and procedures. The estimates of work for each specialty are combined into a single scale by linking across specialties through services that are considered the same or equivalent. Data on charges are used to extrapolate from the surveyed services and procedures to those not directly studied.

Through this method, Hsiao has developed the underpinning of a relative value scale based on resource costs. By assuming that time is not the only element of costs that is relevant to an RVS and by basing estimates of the subjective elements on the judgments of practicing physicians, Hsiao has measured costs in a manner likely to be acceptable to a broad spectrum of physicians.

But the Hsiao estimates of work must be refined and expanded before they can be used as a basis for the RVS in the Medicare Fee Schedule. The key tasks include:

- more precise measurement of work prior to and after direct contact with the patient (pre- and post-service work);
- identification of additional services to incorporate into the cross-specialty linkages;
- more refined methods of estimating physician work for services not included in the physician surveys (extrapolation);
- additional data collection for several specialties surveyed in Phase I of the study and for estimates of physician work in additional specialties;
- a process for resolving remaining problems relating to particular services.

Much of this work is already underway.[2] Professor Hsiao has begun to test better ways to measure pre- and post-service work and to extrapolate from surveyed services to others. When these methods are refined, he will survey specialties not included in Phase I, extend the surveys of certain specialties to cover additional services and procedures, and resurvey selected specialties.

These steps are expected to refine the estimates of work considerably, but inaccuracies in relative values for individual services may still exist. To correct these inaccuracies, the Commission plans to use consensus panels to revise intraspecialty relative values, especially for those developed through extrapolation and for those covered by closely related codes (for example, upper gastrointestinal endoscopy with or without biopsy). It also plans to establish a process by which medical specialty societies and other organizations can raise concerns about relative values for specific services. After consultation with Professor Hsiao, other medical associations, and independent experts, the Commission would judge whether revisions should be made.

Practice and Training Costs. The Commission has not found the estimates of practice and training costs developed by Professor Hsiao to be a suitable component for the Medicare Fee Schedule. Instead, the Commission has developed its own estimates of practice costs and has recalculated the RVS to incorporate them. It plans to refine its estimates of practice costs further.

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[2] Refining estimates of relative physician work should continue after the fee schedule is implemented. A regular update process will be needed to address relative values both for new services and procedures and for modifications of existing services and procedures based on new information about costs.

RECOMMENDATION: Practice costs (expenses for nonphysician inputs) should be incorporated into the RVS through an additive formula.

The original formula used by Professor Hsiao distorted relative values because it maintained the same ratio of the valuation of physician work to practice costs for each service under the resource-based relative value scale as under CPR payment. This led Hsiao to overestimate the impact of a fee schedule on different specialties. An additive formula corrects this problem by holding practice costs for a service constant while the valuation of physician work changes. It also makes it easier to integrate geographic multipliers and to update the conversion factors over time. The Commission has recalculated the RVS based on the Hsiao estimates of physician work using an additive formula and revised estimates of the ratio of practice costs to total revenues by specialty.

RECOMMENDATION: To the degree that it is technically feasible, practice cost factors used in the RVS should apply to categories of services rather than to specialties.

Specialty-specific practice cost factors do not take account of differences in the types of nonphysician inputs used for different services. Since physicians in some specialties provide an array of services with substantially different ratios of physician work to practice costs, use of different practice cost factors for different kinds of services can more accurately relate practice cost allocations to the inputs actually required. Further, the use of specialty-specific practice cost factors based on historical data might incorporate differences in amenity levels induced by the distortions in relative payments under CPR.[3]

To develop practice cost factors that apply to categories of services, the Commission is using data from its own survey of physicians and from other sources to estimate practice costs for categories such as office visits, office technical procedures, inpatient surgery, etc. Practice cost factors would apply across all or most specialties. Certain procedures that require very expensive specialized equipment will require a unique practice cost factor.[4] The Commission has been working with several organizations to collect the data necessary to develop that factor.

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[3] The use of specialty-level practice cost factors need not require the use of specialty differentials. The factor applied to a service could be a weighted average of the factors for each of the specialties that provide the service.

[4] This is relevant to certain diagnostic and therapeutic services performed in a physician's office in which a combined payment is made for professional and technical services. The estimate of physician work from the Hsiao study would be relevant only to the professional component of the fee.

RECOMMENDATION: Costs of professional liability insurance should be separated from other practice costs. They can either be integrated into the RVS through a separate practice cost factor or be reimbursed directly to physicians.

Insurance coverage for professional liability represents a major component of practice costs that varies substantially by specialty and by geographic area. To assure that the Medicare Fee Schedule adequately accounts for differences among risk classes and localities, either a separate practice cost factor should be used or Medicare should reimburse physicians for a portion of their malpractice premium determined by the proportion of their services that are delivered to Medicare beneficiaries. Under either approach, the Federal government would have a stake in investigating the equity of premium-setting practices and in developing policies to reduce the costs of malpractice (both premium costs and the costs of defensive medicine).

RECOMMENDATION: The RVS should not include an additional factor for the opportunity costs of specialty training.

Incorporating a factor for specialty training into the RVS, as proposed by Professor Hsiao, would in many cases violate the principle that physicians should be paid the same when the service is the same. In other cases the specialty-training factor could result in double counting because services requiring additional specialty training tend to be rated by physicians as requiring more work per unit of time.

Coding. Two reforms in coding are required for a relative value scale based on resource costs. They apply to evaluation and management services and surgical global services.

RECOMMENDATION: The coding system for evaluation and management (EM) services should be revised so that visits are classified on the basis of time as well as site of service, type of patient, and referral status.

Physicians cannot accurately use the current codes for EM services because the levels of service (e.g., brief, intermediate, comprehensive) that differentiate each type of visit (e.g., established patient office visit, initial consultation) are not precisely defined. Interpretation varies not only among individual physicians, but also by specialty and by region. This makes it difficult to assign accurate values to current visit codes in a relative value scale based on resource costs.

Analyses by the Commission and by Professor Hsiao suggest that the physician's time is a good predictor of the work involved in each type of visit. The relationship between time and work is similar for physicians in different specialties and in different parts of the country. Thus, incorporating time into the definitions of levels of service would allow more accurate relative values to be assigned to these services which would help physicians use EM codes properly. Carriers would also have a better way of determining whether physicians are billing correctly for these services.

If time were incorporated into the definitions of levels of service, physicians would not receive a uniform payment per hour. Since the Commission's analysis suggests that the relationship between work and time varies depending on the site of service, type of patient and referral status, physicians would receive different payment for providing different types of visits that last the same amount of time. The Commission's analysis also suggests that for a particular visit type, the relationship between total work and patient contact time is not proportional, so that those physicians providing more visits per hour of patient contact time would receive more payment.

Many details need to be resolved before time can be incorporated in an EM coding system. Working with the American Medical Association's CPT Editorial Panel, the Commission plans to convene a consensus panel made up of physicians from all major specialties providing EM services and including carrier representatives and beneficiaries. The panel would help design a revised coding system, drawing on data from the Commission's log-diary visit survey and from the Hsiao study, and report to both the Commission and the CPT Editorial panel.

> **RECOMMENDATION: The legislative mandate to the Health Care Financing Administration (HCFA) to group evaluation and management codes for payment purposes should be delayed until the above mentioned reform of coding for these services is completed.**

The legislative mandate to "group codes for payment purposes" by January 1, 1990[5] is no longer an appropriate way to proceed. The goal of this mandate is controlling the misuse and abuse of the coding system under the current payment method. But the Commission's analysis indicates that this goal would be better accomplished by integrating precise definitions for codes with relative values that more closely approximate relative resource costs. The Commission therefore recommends that this legislative mandate be delayed until coding reform is completed.

> **RECOMMENDATION: Global payment for surgery should be based on the policy developed by the Commission for defining which services associated**

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[5] Omnibus Budget Reconciliation Act of 1986 (P.L. 99-509), Section 9331 (d)(2).

with an operation are to be included in the payment for the operation. This policy should be adopted by all Medicare carriers when the Medicare Fee Schedule is implemented.

Surgical services have long been billed on a global fee basis, which means that the operation, many perioperative procedures, and EM services are all included in the fee. Medicare pays for surgery on a global basis, but each carrier uses a different definition of which services are to be included in the global payment and which are to be paid separately. A national RVS requires a uniform definition that is clear, fair, and easy to administer.

Through convening and adopting the recommendations of a consensus panel of surgeons and carrier representatives, the Commission has developed such a global fee policy (see Chapter 4). Under the Commission's policy, the global fee will include preoperative hospital visits on the day of surgery and the day before, postoperative visits for 90 days after the operation, and intraoperative procedures by the principal surgeon that are considered usual and necessary. Services to be paid separately include the surgical consultation, nonoperative procedures not specified as included, and reoperations for complications. Estimates from the Hsiao study for relative work for surgical procedures will be revised to reflect this uniform global fee definition.[6]

Specialty Differentials

RECOMMENDATION: Specialty differentials should not be incorporated into the Medicare Fee Schedule.

Specialty differentials--differences in payment to physicians of different specialties for the same procedure code--should be considered only when the work provided by different specialties is substantially different. With the reform in coding for EM services described above, this situation will become much less common.

In some cases, physicians in different specialties provide different services under the same code, but would receive the same payment under the Medicare Fee Schedule, because distinct codes that would accurately capture these differences do not exist. These legitimate bases for differences in payment, when substantiated, should be recognized by establishing new codes and setting relative values to reflect differences in resource costs. Identifiying such coding changes would be part of the process of updating the relative value scale.

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[6] The definition used in the Hsiao study is narrower than most carriers' definitions today. The Commission's simulations included in this report have adjusted for this. The adjustment reduced the extent to which payments to surgeons would decrease under the fee schedule when compared to estimates published by Hsiao and earlier ones from the Commission.

Specialty-Specific Relative Value Scales

Medicare currently pays for the services of anesthesiologists and radiologists on the basis of relative value scales specific to those specialties.

> **RECOMMENDATION: The Medicare Fee Schedule based on resource costs should determine payment to all physicians, including those currently paid under specialty-specific relative value scales.**

For anesthesia services, most carriers have long used various versions of the Relative Value Guide (RVG) developed by the American Society of Anesthesiologists. The RVG bases payment on time, the difficulty of the operation, and patient condition. The Omnibus Budget Reconciliation Act of 1987 (P.L. 100-203 (OBRA87)) directed the Secretary of Health and Human Services to develop a standard version of the RVG for use by all carriers. This policy has recently been implemented.[7] Since the RVG is resource-based and has been in use for some time, the Commission will consider it as an alternative to the intraspecialty relative values developed by the Hsiao study. The cross-specialty linkages from the Hsiao study would be used to integrate the RVG for anesthesia with the rest of the RVS.

Currently, services provided by radiologists are paid on the basis of a fee schedule developed by the Health Care Financing Administration (HCFA) in consultation with the American College of Radiology. The Commission will evaluate whether the relative value scale underlying this fee schedule improves upon the Hsiao study's intraspecialty relative value scale in its ability to reflect resource costs. If this should be the case, the Commission would integrate these relative values for radiology into the overall RVS using the linkages developed in the Hsiao study.

Geographic Multiplier

The relative value scale described above should be applied uniformly throughout the nation, but the actual payment rates in different localities need not be uniform.

> **RECOMMENDATION: Payments under the MFS should vary from one geographic locality to another to reflect variation in physicians' costs of practice. The cost-of-practice index underlying the geographic multiplier should reflect variation only in the prices of nonphysician inputs.**

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[7] The version currently used by Medicare does not include the factor for patient condition.

In response to a mandate from Congress, HCFA has sponsored the development of an index to estimate differences in practice costs physicians face in different localities. This index is based not on the actual practice costs incurred by physicians practicing in different areas, but on the prices that they face for the various nonphysician inputs that they use.[8]

Physician time and effort should be valued uniformly throughout the nation. Thus, if physicians in two regions of the country provided the same services to Medicare beneficiaries, they would earn the same net income from those services.

The cost-of-practice index developed for HCFA by the Urban Institute and the Center for Health Economics Research measures variation in prices for rent and for salaries of nonphysician employees.[9] It assumes that medical equipment, medical supplies, and "other" items are purchased in national markets and therefore the index does not reflect variation in their prices. The index also includes a component to reflect the opportunity cost of physician time and effort. It is measured by earnings of employed professionals. Under the Commission's recommendation, this component would have a constant value assigned to it.

Price indexes, such as the one described above, may not accurately reflect costs of practice in rural areas. Rural physicians may face higher prices for equipment maintenance, for example, an item assumed to have uniform costs. In addition, rural practices may have some diseconomies from fewer opportunities to purchase rather than provide support services. The Commission has collected data on costs of rural practice and will analyze them to determine if an additional adjustment for rural practice is called for.

> **RECOMMENDATION: As part of the Medicare Fee Schedule, a uniform policy on the delineation of charge localities is needed.**

The geographic multiplier would require the drawing of a new set of boundaries for charge localities. At present, each carrier has the discretion to draw locality boundaries within its area of responsibility, and carriers use very different principles to identify charge localities. In conjunction with HCFA and its carriers, the Commission plans to develop a uniform policy. This policy will be flexible enough for carriers to suggest to HCFA adjustments that would better reflect unique local circumstances.

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[8] By focusing on prices faced, differences in amenity levels from one locality to the next would not affect the index. For example, if physicians in one area tend to have large offices in luxury buildings and those in another area have small offices in more modest surroundings, the index, rent per square foot of a standardized grade of space, would not reflect this behavior.

The index is being developed by the Urban Institute and the Center for Health Economics Research. While not yet complete, the Commission has used a preliminary version in its simulations and anticipates that a refined version will be available for implementation of the Medicare Fee Schedule.

[9] The index also measures variation in premiums for professional liability insurance, but this will be reflected in the separate practice cost factor described above.

Assignment and Balance/Extra Billing

Enactment of a Medicare Fee Schedule requires a policy decision concerning assignment and balance billing. The current maximum allowable actual charge (MAAC) limits would no longer fulfill their purpose under a fee schedule. Given all of the changes in payments resulting from the Medicare Fee Schedule, a limitation based on what physicians charged for a service in the second quarter of 1984 would no longer be appropriate.

> **RECOMMENDATION: Charges for unassigned claims should be limited to a fixed percentage of the fee schedule amount. This policy would replace the existing MAAC limits. The Commission does not have a recommendation for the specific percentage to be used.**

The Commission advocates limits on charges for the same reason that it advocates a fee schedule based primarily on resource costs. The reason is that the market for physicians' services does not function well enough to provide financial protection for Medicare beneficiaries. The PPRC Survey of Beneficiaries found that balance bills fall on low-income beneficiaries as well as those better able to pay them. On the other hand, the Commission does not recommend mandatory assignment at this time. Mandatory assignment would be unacceptable to many physicians and inconsistent with the Commission's goal of orderly change.[10]

There are two precedents in OBRA87 for limits on charges. Charges for the services of radiologists were limited to 125 percent of the amount specified for a service by the radiology fee schedule in 1989, 120 percent in 1990, and 115 percent after 1990. The other precedent involves physician charges for overpriced procedures for which the prevailing charge was reduced. These charges were limited to 125 percent of the new prevailing charge plus one half of the difference between the allowed charge and the MAAC in 1988, and to 125 percent of the reduced prevailing charge thereafter.

The Commission has simulated the effects of charge limits ranging from 110 percent to 140 percent of the fee schedule amount. Under an assumption that physicians do not change their behavior concerning assignment and submitted charges and that the mix and volume of services do not change, Table 1 shows the effects of charge limits on both aggregate balance billing and on the size distribution of balance bills incurred by beneficiaries.

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[10] See the minority statement of Commissioners Butler, Guildroy, Hornbrook, and Wright in support of mandatory assignment, which appears at the end of Chapter 7.

> **RECOMMENDATION: Balance billing should not be permitted for any Medicare beneficiary whose cost sharing is paid by Medicaid.**

This recommendation requires clarification of a provision in the Medicare Catastrophic Coverage Act of 1988 (P.L. 100-360). Under this provision state Medicaid programs must pay Medicare cost sharing for beneficiaries seeking this assistance who are not otherwise eligible for Medicaid, but who have incomes below the federal poverty level. The current legislation covers Medicaid payment of deductibles, premiums and coinsurance, but does not require physicians to accept the Medicare allowed charge as payment in full, as they do for other Medicare beneficiaries covered by Medicaid. Since the Commission views these persons as Medicaid beneficiaries, the policy on balance billing that applies to all dual eligibles should apply to them.

In principle, the Commission believes that assignment should be required in situations where the beneficiary has no meaningful choice of provider. However, it is not yet able to clearly delineate those services for which patients rarely have a meaningful choice of provider and thus is not prepared to issue a specific recommendation on this at the present time. In the future, the Commission will assess the feasibility of identifying services for which patients rarely have a meaningful choice of physician. It will also be examining the burden of coinsurance and balance billing for medically or financially vulnerable beneficiaries.

> **RECOMMENDATION: The Participating Physician and Supplier Program (PAR) and its payment differential providing higher fees to participating physicians should be continued under the Medicare Fee Schedule.**

The PAR program appears to have increased the assignment rate through its 5 percent payment differential, by facilitating beneficiary efforts to identify physicians who will accept assignment, and by freeing physicians from restrictions associated with unassigned claims. The Commission supports the efforts made to encourage physicians to accept assignment, but the PAR program would be more effective if greater efforts also were made to encourage beneficiaries to use it.

Conversion Factor

The conversion factor transforms the RVS into a schedule of dollar payments.

RECOMMENDATION: The Medicare Fee Schedule is a fundamental payment reform. Decisions on payment updates should be made independently of this basic reform.

The Commission has assumed that the initial conversion factor would be set at a level so that Medicare outlays projected under the fee schedule would equal those projected under the current payment system. This "budget-neutral" conversion factor for the initial year would separate the fundamental reform embodied in the MFS from issues such as the resources available for medical care for the elderly and the appropriate level of payment to physicians. These aggregate concerns would be addressed separately, through an update to prevailing charges for all services. With this aggregate update in place, fees for each service under the MFS would be established using a budget-neutral conversion factor. Updates in the conversion factor would be based on expenditure targets (see pages xxx-xxxiii).

Impact on Beneficiaries, Physicians and Other Payers

The Commission has constructed simulations to project the impact of the Medicare Fee Schedule on physicians and beneficiaries. Because of limited experience with policies changing the pattern of relative payments for physicians' services, the simulations do not incorporate assumptions concerning changes in utilization of services or decisions to accept assignment. The simulations have incorporated the following specifications:

- Hsiao estimates of relative work when available;[11]
- a uniform global service definition for surgery;
- an additive formula to incorporate practice costs into the RVS;[12]
- no adjustment for the opportunity costs of specialty training;
- a geographic multiplier reflecting variation in prices of nonphysician inputs only;
- charge locality boundaries conforming to metropolitan statistical areas (MSAs) and the nonmetropolitan area of each state;

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[11] The Hsiao study provided relative work values for approximately 1400 services and procedures. The Commission staff used extrapolation techniques similar to those developed by Hsiao to estimate a relative value for many of the remaining codes for physician services.

[12] Since a practice cost methodology for category of service has not yet been completed, the simulations incorporate a specialty-specific approach. The practice cost factors have been revised from those originally used by the Hsiao team, however.

- Medicare payment at the fee schedule amount regardless of physicians' submitted charges; a limit on physician charges at a fixed percentage of the fee schedule amount.[13]

For individual services, most changes in payments would be between a 30 percent decrease and a 34 percent increase (Table 2). Fees for evaluation and management services, such as office visits and hospital visits, would increase by an average of 28 percent and fees for surgical procedures would decrease by an average of 17 percent.

The sum of coinsurance and balance billing would decline for most--perhaps three-quarters--of beneficiaries (Table 3). Only 11 percent would have increases in excess of $10. While changes in coinsurance would be slight for all categories of beneficiaries (with no net impact on beneficiaries as a whole), balance bills would decline for all categories (Table 4). The simulation projects a 65 percent ($32) decline in balance billing liabilities for the average beneficiary. When changes in behavior regarding assignment are taken into account, the decline will likely be somewhat smaller.[14]

The fee schedule with a charge limit would reduce the number of beneficiaries who incur large amounts of balance bills in a year (Table 1). With a 120 percent charge limit, the proportion of beneficiaries with balance bills exceeding $500 in a year would decline from 4 percent to 1 percent. Even with much higher balance billing limits, far fewer beneficiaries would face large balance bills than under the current system.

Medicare payments would increase substantially for family physicians and internists and decrease substantially for thoracic surgeons, ophthalmologists, and radiologists (Table 5). Some surgical specialties, such as urology, otolaryngology, and orthopedics, would have small net changes, with increased fees for evaluation and management services roughly offsetting declines in fees for surgical procedures. While aggregate payments to physicians from Medicare would be the same, revenues from treating Medicare patients would decline as a result of the balance billing limits. With a 120 percent limit, revenues would decline by approximately 6 percent.

The Medicare Fee Schedule would change the distribution of payments among geographic areas (Table 6). Using a geographic multiplier that reflects costs of nonphysician inputs only, payments to physicians in rural areas would increase by 14 percent. Those to physicians in very large metropolitan areas would decrease by 14 percent. Payment changes in other categories of metropolitan areas would be small. The magnitude of payment variation from one locality to another would be substantially less than under current policies.

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[13] Since the Commission did not recommend a specific percentage limit, it simulated the effects of a range of limits, from 110 to 140 percent of the fee schedule amount. Unless otherwise indicated, the results presented in this summary chapter used a 120 percent limit.

[14] The model assumed that physician behavior concerning assignment would not change and that for unassigned claims, submitted charges would be the same. Some alternative assumptions would suggest a smaller reduction in balance billing.

The impact of the Medicare Fee Schedule on other payers is uncertain. Those private payers that purchase services from a subset of physicians (for example, HMOs and PPOs) might find the relative values adopted by Medicare to be a useful guide for determining payment. Those that negotiate with physicians might experience pressure to raise payments for evaluation and management services and opportunities to lower payments for surgery. Some suspect that physicians will raise or lower charges to private patients in order to offset revenue changes from Medicare patients, or even change rates of service prescribing, but the research literature is not conclusive concerning "cost shifting" for physician services.

Some Medicaid programs explicitly tie their physician payments to Medicare payments. Many of these will change their payment methods to reflect the Medicare fee schedule. Those Medicaid programs that use fee schedules in which the relative value scales are charge based could substitute the Medicare RVS. But the problem of unrealistically low physician payments in many of these programs could very well continue. The Commission will examine this issue in greater detail during the coming year.

Transition

A transition period is needed to give physicians and beneficiaries time to adjust. It would permit some of the advantages of the Medicare Fee Schedule to be gained before the definitive version of it is available, would allow for midcourse corrections, and would increase the chances that private payers will change their policies as Medicare changes are being implemented. The transition should begin soon, but with relatively modest initial changes in payment; it should use improved data as they become available, and should avoid disruptions or increases in Medicare's administrative burdens.

> **RECOMMENDATION: A transitional stage should begin in 1990, with implementation of the full Medicare Fee Schedule planned for 1992.**

In one plan that would meet these objectives, this transitional stage would initially retain customary and prevailing charge screens. For each charge locality, a projected fee schedule amount would be calculated for each of the 350 services and procedures that account for the largest dollar volume of Medicare claims.[15] For each service/locality combination, the percentage difference between the fee schedule amount and the average allowed charge under current policy would be calculated. In the case of EM services, however, where accurate relative values for particular codes will not be available until coding is reformed, the calculation of percentage differences would be for categories of service, such as office visits and hospital visits.

For the first year of the transitional stage, the prevailing charge for each service would be changed by one-fifth of this percentage difference. Thus, for example, if office visits are to increase by 28 percent under the Medicare Fee Schedule, the prevailing charge for each visit code would increase by about 6 percent during this first year. For the second year of the transitional stage, the Medicare Fee Schedule would be revised to reflect all of the additional relevant data expected to be available. Prevailing charges would be adjusted by an additional one-fourth.

Under an alternative for the second stage, payments could be a blend between each physician's average allowed amount for the service in 1990 and the projected Medicare Fee Schedule amount. This alternative would permit elimination of prevailing and customary charge screens during the second year and incorporation of new boundaries for localities.

Implementation of the transitional stage would begin about six to nine months after enactment of the legislation. After two years of experience, the full Medicare Fee Schedule would be implemented. At this point, coding reforms would be implemented. The Commission staff will hold discussions with the policy and operations staffs of HCFA to revise the details of this transition plan.

Monitoring Access

The Commission expects that on the whole, the Medicare Fee Schedule would improve the quality of care and increase access by beneficiaries. But the fee schedule might set the payments for particular procedures and particular localities too high or too low, and nobody can accurately predict how physicians and beneficiaries would respond to changes in relative payments.

> **RECOMMENDATION: The Medicare program should devote greater efforts to monitoring access to care and the degree of financial burden experienced by beneficiaries.**

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[15] The 350 services and procedures would account for approximately 80 percent of Medicare payments to physicians.

While some of the information needed to monitor access can be derived from claims files, additional access indicators will be necessary for a thorough assessment. The Commission thus recommends the judicious use of survey data to examine beneficiaries' satisfaction with their care, their self-perceived health status, other measures of access, and the degree of financial burden from out-of-pocket expenses. The Commission supports HCFA's efforts to develop an ongoing survey mechanism to gather detailed information on beneficiaries' use of service, out-of-pocket expenditures and other items. It recommends that full support be provided for implementing the proposed Current Beneficiary Survey.

> **RECOMMENDATION: Information gathered on access to care should be integrated into the annual update process.**

For example, evidence of limitations in access to a service or category of service could be one consideration for a revision in the payments for those services. Or evidence of limitations in a geographic area could lead to a revision in the geographic multiplier. Finally, evidence on access by the Medicare population as a whole could be relevant to the update of the conversion factor.

Update Process

A fee schedule is not a static policy. It must be revised to reflect changes in physician practice, beneficiary access, and the utilization of services.

Updating the fee schedule involves decisions on setting the conversion factor and revising the relative payments. Decisions on the conversion factor are likely to reflect a blend of factual data and budget or other policy considerations. Updating the relative payments encompasses the more technical issues involved in adjusting relative values for individual procedures and valuing new procedures, refining the coding system, and modifying geographic multipliers.

The Commission has studied the experience in updating fee schedules in Canada, France and West Germany and has concluded that no single approach used elsewhere can be applied in the United States. It has also considered four processes that might be used to update the fee schedule, including a formula approach, the regulatory rule making process, use of an independent commission, and direct negotiation. It concluded that a process combining elements of each is most compatible with American political and administrative traditions.

> **RECOMMENDATION: The process used to develop the fee schedule proposal--in which the Physician Payment Review Commission seeks the input of organizations representing physicians, beneficiaries, and other affected parties and develops recommendations to the Congress--should be used for updating the fee schedule as well.**

That process has been successful in accomplishing the technical and policy development tasks required, as well as providing substantial opportunity for organizations representing physicians, beneficiaries and others affected by the policy to participate in the decision-making.

Under this process, Congress would set policy regarding updates in the conversion factor, changes in relative values and adjustments to the fee schedule. The Commission would continue to provide the Congress with necessary data, analysis and policy advice each year for its update decisions. Groups representing physicians, beneficiaries and others would participate in both technical refinements and major policy decisions, with the Commission providing the principal forum for their input. HCFA would continue as the principal implementing agency, carrying out congressionally defined policies through its administrative and rulemaking processes. Both the Commission and HCFA would monitor implementation of the fee schedule and conduct technical analyses needed for policy decisions.

EXPENDITURE TARGETS

The rapid rate of growth in spending for physicians' services in Medicare has diverted public resources from other federal priorities and diverted beneficiary resources that pay for premiums and coinsurance from other needs. As Medicare accounts for a larger portion of federal outlays and beneficiary spending, continuation of these trends would require much larger sacrifices than in the past. In order to meet this pressing need to slow growth in expenditures, the Commission has developed a proposal under which annual increases in the conversion factor under the Medicare Fee Schedule are based on a comparison of increases in spending per enrollee with a target rate of increase.

> **RECOMMENDATION: The conversion factor should be updated annually through an expenditure target formula, so that the rate of increase of Medicare expenditures per enrollee determines in part the size of the conversion factor update.**

In contrast to budget policy in recent years that has concentrated on reducing price, expenditure targets would provide an opportunity for physicians to help the program achieve its cost containment objectives through actions to slow the increase in utilization of services. A collective incentive would be given to the medical community to reduce services of little or no benefit to patients. While not providing direct incentives to individual practitioners, such a policy would encourage the leadership of medicine to become more active in the support of activities to better inform physicians of the medical benefits and risks of procedures and to play a more active and constructive role in peer review activities. Expenditure targets would both send a message about the need to slow the rate of increase in program and beneficiary outlays and provide physicians with constructive ways to respond.

The target would reflect increases in a reformulated Medicare Economic Index (MEI)[16], growth and aging of the enrollee population, and a decision concerning the degree to which expenditure growth should exceed these factors. This decision would reflect tradeoffs between beneficiary needs, technological advances and affordability to beneficiaries and taxpayers.

If actual expenditures during a year equalled targeted expenditures, then the conversion factor update for the following year would be equal to the increase in the MEI. The update would be increased or decreased to reflect differences between actual and targeted expenditure increases.

As an example, assume that the MEI will increase by 4 percent, enrollment and aging will increase expenditures by 2 percent, and volume of services is projected to increase by 7 percent per (age-adjusted) enrollee. This would lead to a 13 percent increase in expenditures from the base year. Now assume that a target of 11 percent per year for two years--2 percentage points less than the projection--is chosen. Thus growth of billed services per enrollee would have to slow to 5 percent for physicians to receive an update equal to the MEI for the following year.

If actual expenditures rise 13 percent, then the conversion factor update for the following year would be 2 percent (the 4 percent increase in the MEI less the 2 percent by which the target was exceeded). If actual expenditures rise only 9 percent, then the conversion factor update would be 6 percent (the MEI increase of 4 percent plus the 2 percent by which expenditures fell short of the target). In either case, the second year's target would be 111 percent of the first year's target level of expenditures (or 123 percent of expenditures in the base year).

Alternatively, the target could be set further below the projected rate of increase in expenditures--for example at 8 percent. This would hold growth in Medicare physician outlays much closer to increases in the gross national product. The probability that smaller conversion factor updates would play a larger role in bridging the gap between the projected and targeted rates of growth of expenditures would be increased, however.

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[16] The MEI attempts to measure annual increases in physicians' costs of practice. It includes a component for the opportunity cost of the physician's time and effort, as well as components for the prices of nonphysician inputs.

RECOMMENDATION: The expenditure target should apply initially to all physicians' services[17] nationally. The policy is expected to evolve, leading to incorporation of a broader range of services and to separate targets for regions and/or categories of physicians' services.

Over time, the scope of expenditure targets could be broadened to include other Part B services that are ordered by physicians and the rate of hospital admissions. A broader scope would give physicians additional options to slow expenditure growth. Targets could be established for states, carrier areas, or metropolitan areas. These areas conform more to the Medicare infrastructure of carriers, intermediaries, and PROs and the medical profession's infrastructure of state and county medical societies and chapters of specialty societies. With regional targets, physicians might feel that they could work through their local organizations to meet state or metropolitan targets, while national targets would encompass too many aspects of care beyond their control. In addition, targets could be developed for categories of medical services. While the Commission recommends starting with a relatively simple program, it has already studied several of these options extensively and will continue to do so.

Expenditure targets would not directly alter the financial incentives for individual physicians and their patients. Rather, they would affect the physician community as a whole. The profession and its leadership could respond through education and support of the existing infrastructure of medical review. For example, the AMA and national specialty societies could develop practice guidelines and disseminate them. They could provide technical assistance to carriers and PROs in the development of criteria for review and political support for sanctions of physicians who persisted in providing care that is inappropriate and does not meet standards of quality. In order to allow time to develop the necessary infrastructure to control costs, the Commission suggests a cautious approach to setting target rates of increase for the first few years.

In order to enable the physician community to develop as effective a response as possible, changes in antitrust and tort law may be necessary. While carriers and PROs have immunity from antitrust violations when pursuing their assigned tasks, medical associations and hospital medical staffs may be limited in their activities directed at physicians whose quality of care does not meet recognized standards or who perform unnecessary services. The Commission plans to examine the impact of antitrust barriers on medical organizations in order to discern whether limited immunity would be advisable.

Fear of malpractice suits may inhibit change by encouraging physicians to continue prescribing services that have only marginal benefit. Roughly 6 percent of the cost of physician services now goes to pay professional liability insurance premiums, and that does not include the cost of defensive medicine. If the nation wants physicians to heed the urgings of the payers and their peers to practice more efficiently, it needs to concern itself with the magnitude of the malpractice risks that physicians face. The Commission plans to examine the medical malpractice issue and to make recommendations concerning possible federal legislation.

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[17] Laboratory services, whether provided in the physician's office or in an outside laboratory, would be included in the targets along with physician services, but the subsequent conversion factor adjustment would apply only to physicians' services.

EFFECTIVENESS RESEARCH AND PRACTICE GUIDELINES

Knowledge of the effectiveness and appropriateness of medical practices and procedures can be increased through clinical and health services research. More research is clearly needed to determine the medical outcomes and costs of clinical alternatives and their effect on medical outcomes and the delivery of care. This work would include clinical trials, epidemiological studies using data generated by clinical practice, analysis of the cost effectiveness of alternative ways to organize care, and assessment of techniques used in managed care to influence physicians' clinical decisions.

Practice guidelines synthesize the best we know from research and the judgments of practicing physicians into a form that can be readily used. These guidelines should be incorporated into physicians' practices and made available to patients. They should also provide the basis for coverage, payment, and medical review criteria developed by hospital medical staffs, PROs, intermediaries, and carriers.

> **RECOMMENDATION: The Federal government should support effectiveness research and practice guidelines through increased funding, coordination, and evaluation.**

Several hundred million dollars per year should be provided for clinical research and technology assessment. Tens of millions per year are needed for development, dissemination, implementation, evaluation, and revision of practice guidelines and review criteria. These sums are small when compared to funds spent on research to develop new medical technologies; they are a tiny fraction of the $500 billion spent on health care. The medical profession would be expected to continue its support for this important research through contributions of funds and of physician time and expertise.

For effectiveness research, Congress could continue to use existing federal agencies to conduct intramural and sponsor extramural research. Alternatively, it could suggest that a new entity in the Department of Health and Human Services be created for this purpose.

RECOMMENDATION: For practice guidelines, federal funds should be used to support and build on initiatives by the medical profession and others in the private sector.

Federal funding would be accompanied by federal oversight to insure the integrity of the process, including the quality of the methods used, and the validity of the resulting guidelines. This oversight could also bring an element of coordination to the now-fragmented activities in the private sector by facilitating efforts to share information, identify issues and set priorities. The federal government should evaluate the processes by which guidelines are disseminated to practicing physicians and the effects of guidelines on clinical practice.

The federal government also has a role as administrator of Medicare. HCFA should reinforce the importance of basing medical review on sound criteria by assisting PROs and carriers in choosing such criteria consistent with practice guidelines. It should provide the carriers and PROs with funding to help in dissemination. It should evaluate the effects of practice guidelines on the outcomes of utilization and quality review activities in Medicare.

UTILIZATION AND QUALITY REVIEW

Medicare utilization and quality review programs should ensure that the medical care provided to beneficiaries is necessary and appropriate, is provided in a cost effective manner, and meets recognized standards of quality. But Medicare review programs, like those of other payers, were originally designed to focus on individual insurance claims, not to provide for the effective management of the complete range of medical services beneficiaries receive.

If utilization and quality review are to be effective tools in improving the quality and efficiency of care and controlling the growth in Medicare expenditures, the Medicare program will have to create a comprehensive medical review system that looks across individual services to complete episodes of care and systematically integrates information drawn from claims data and medical records, analysis of practice variations, and profiles of physician practice. To take on these responsibilities, carriers and PROs will need time and additional resources. They will also require more administrative flexibility and the cooperation of the medical community.

RECOMMENDATION: The Commission supports HCFA's current efforts to move toward a more comprehensive approach to medical review and calls for further actions to strengthen the review process. It has a number of specific recommendations to structure and focus this transition.

First, HCFA should establish procedures to encourage input from carriers and PROs in designing criteria used in utilization and quality review, in developing physician profiling activities, and in the investigating physicians suspected of providing inappropriate or substandard care or billing inappropriately.

Second, HCFA, carriers, and PROs must work together to delineate the future roles of PROs in the review of care provided by physicians in office settings. Specific questions include how the findings from PRO reviews of care in office settings and how PRO activities focused on entire episodes of illness should be coordinated with carrier and intermediary medical review responsibilities.

Third, PROs and carriers should consult with appropriate medical organizations when developing review criteria. The Commission believes that the proposed rule published by HCFA on January 30, 1989 to provide opportunities for the medical community to comment on new review criteria would be an important step towards meeting this objective.

Fourth, HCFA should designate a single entity to support research, demonstrations, evaluations, and technical assistance in quality and utilization review for PROs, carriers, and intermediaries. This office should also serve as a source of information about state-of-the-art review methods and as a conduit for information about new practice guidelines that could be integrated into review criteria.

STRENGTHENING THE INFRASTRUCTURE FOR PAYMENT REFORM

Implementing a fee schedule and expenditure targets would require changes in the Medicare data system both to administer the policies and monitor their effects. The Commission applauds HCFA's efforts to improve the data system such as establishing the unique physician identifier, incorporating diagnosis codes on physician claims forms, and developing a common working file including both Part A and B data. The Commission recommends two further changes in the agency's data system to help it implement the payment reforms. It also calls for increased funding for program administration.

Improvements in Data System

> **RECOMMENDATION: Providers should file Medicare claims for all services--both assigned and unassigned--with no charge to beneficiaries. Claims should be submitted within 90 days after the delivery of service.**

This would insure that beneficiaries receive the benefits to which they are entitled and would facilitate efficient claims processing and accurate and timely program data. Carriers should contact a sample of beneficiaries to determine the accuracy of claims submitted by physicians.

RECOMMENDATION: HCFA should establish comprehensive requirements for carrier electronic claims capabilities and provide technical assistance to carriers.

Increased use of electronic claims (EMC) could significantly reduce carrier processing costs and improve the accuracy of program data. During the next year HCFA should develop an operational plan for more rapid conversion from paper claims to EMC. Congress should make movement to EMC a clear priority for HCFA by writing a timetable for electronic submission of all Part B claims.

RECOMMENDATION: Electronic claims should be exempted from requirements for minimum processing times.

One of the major incentives to physicians to use EMC is prompter payment, but current minimum time requirements for processing remove much of that advantage.

Funding

The ability of the carriers to implement a fee schedule, increase EMC usage, and expand their medical review activities depends on adequate and predictable funding. Such funding unfortunately cannot be taken for granted. While funding for medical review activities of carriers was increased for the current fiscal year, the President's budget for 1990 would cut funding by 19 percent.

RECOMMENDATION: The Congress should provide adequate and predictable funding for program administration.

Since HCFA is trying to hold back outlay increases in the range of $4 billion per year, attempts to shave spending for administration (in particular, medical review) are poorly conceived. If major reforms in this program, are to be attempted, the administrative resources to carry them out must be assured.

RISK-SHARING ARRANGEMENTS IN PREPAID HEALTH PLANS

Some have expressed concern that certain types of prepaid health plans have failed to establish strong organizational structures and management systems and instead have relied heavily on financial incentives to physicians to control costs, posing a risk of underservice to enrollees. This concern led Congress in 1986 to prohibit HMO and CMP use of financial inducements to physicians to reduce or limit service to

Medicare beneficiaries. The provision was not scheduled to take effect until 1990 in order to permit time to develop a less sweeping limitation.

While the use of financial incentives to physicians raises important concerns regarding patient care, broad prohibitions may not be in the interest of Medicare beneficiaries. First, we have no definitive information concerning whether or not risk-sharing arrangements now have an adverse effect on access or quality. Second, such restrictions could result in the termination of many HMO risk contracts with Medicare and reduce beneficiaries' access to prepaid plans. Medicare beneficiaries comprise a very small proportion of HMO enrollment, so restrictions on practices that HMOs consider important to their success could lead many to turn away from the Medicare program.

> **RECOMMENDATION: HCFA should require prepaid health plans to limit the total risk assumed by individual physicians or small groups through some form of reinsurance or "stop loss" provision, and it should require them to rely primarily on incentives to groups of physicians rather than to individual physicians. Health plans should also disclose to both physicians and enrollees appropriate information on risk-sharing arrangements.**

Limiting total risk assumed by physicians through reinsurance reduces the likelihood that financial incentives will interfere with doing what is best for the patient. Group-level risk-sharing arrangements weaken the effect of specific patient decisions on a primary care physician's personal income and they encourage active peer review. Informed and knowledgeable beneficiaries and physicians could help identify and prevent any inappropriate care that may result from financial incentives.

> **RECOMMENDATION: HCFA should continue to strengthen its monitoring and review processes applicable to prepaid plans and should conduct periodic surveys of both current and former enrollees to assess both access to care and beneficiary satisfaction.**

Increased monitoring is desirable regardless of the degree of financial risk assumed by physicians because monitoring systems identify a variety of access and quality problems in addition to those that may result from risk sharing. Pursuing a policy of increased monitoring and limited restrictions on risk sharing would allow HMOs to continue using some incentives thought to be beneficial in promoting cost effective patient care.

> **RECOMMENDATION: HCFA and others should conduct additional research to identify the effects of patient characteristics on the use of**

services and to assess the impact of risk-sharing arrangements on physician behavior and the accessibility and quality of care.

A better understanding of issues related to the design and effects of risk sharing arrangements would provide a foundation for future policy decisions and assist HMOs in fashioning well-balanced risk-sharing arrangements that encourage efficient behavior and cooperation by payers, providers, and beneficiaries in the use of resources.

Table 1. Effects of Alternative Balance Bill Limits on Beneficiaries[a] Under the Medicare Fee Schedule

	CHANGE IN BALANCE BILL LIABILITY FROM CPR		BENEFICIARIES WITH > $500 BALANCE BILL LIABILITY
	$	%	%
CPR	0	0	4
MFS BALANCE BILL LIMITS			
No Limit	29	32	6
140% Limit	-34	-38	2
130% Limit	-46	-50	1
120% Limit	-59	-65	1
110% Limit	-73	-81	0
Mandatory Assignment	-91	-100	0

Source: PPRC Simulations.

Note: [a] Excludes enrollees who did not have claims and Medicaid beneficiaries.

Table 2. National Mean Payments for Selected Procedures[a]

		CPR	MFS	CHANGE
Evaluation and Management		$	$	%
90050	limited office visit	23	28	24
90060	intermediate office visit	28	35	26
90250	limited hospital visit	26	33	28
90260	intermediate hospital visit	30	40	34
90620	comprehensive consultation	93	104	12
92014	eye exam and treatment	42	39	-6
Surgery				
27130	total hip replacement	2404	1985	-17
27244	repair femur fracture	1299	1198	-8
33512	coronary artery bypass	3894	2828	-27
35301	rechannel of artery	1573	1172	-26
44140	partial removal of colon	1256	1072	-15
49505	repair inguinal hernia	588	414	-30
52601	prostatectomy (*TUR*)	1128	921	-18
66984	remove cataract, insert lens	1164	1164	-21
Diagnostic				
52000	cystoscopy	105	110	5
70470	contrast CAT scans of head	113	82	-27
71010	x-ray exam of chest (1 view)	12	10	-16
93000	electrocardiogram, complete	35	25	-28

Source: PPRC Simulations.

Note: Fees are for procedures performed by the most common specialty in the most common place of service.

Table 3. Distribution of Beneficiaries by Changes in Coinsurance Plus Balance Bills

Medicare Fee Schedule with 120% Limit

	PERCENT OF BENEFICIARIES	
CHANGE FROM CPR	WITH DECREASES	WITH INCREASES
$ 1 - 10	25	16
11 - 25	13	5
26 - 50	11	3
51 - 100	10	2
101 - 251	8	1
251 - 1000	5	0
> 1000	1	0
Total	73	27

Source: PPRC Simulations.

Note: Excludes enrollees who did not have claims and Medicaid beneficiaries.

Table 4. Beneficiaries' Liabilities for Coinsurance Plus Balance Bills Under the Medicare Fee Schedule

120% Balance Bill Limit

	DOLLARS OF SPENDING PER BENEFICIARY AND PERCENT CHANGE FROM CPR					
	TOTAL		BALANCE BILL		COINSURANCE	
All	$179	-25%	$32	-65%	$147	0%
< 65 yrs	186	-21	24	-69	162	3
65 - 74	167	-27	32	-65	135	-2
75 - 84	195	-24	35	-63	160	0
85+ yrs	184	-19	29	-64	155	5
Males	190	-26	34	-65	156	-2
white	192	-26	36	-65	156	-2
non-white	170	-18	18	-67	152	0
Females	171	-24	30	-65	141	1
white	172	-25	31	-65	141	1
non-white	157	-16	17	-67	140	3
Area						
very large metro	219	-32	36	-69	183	-12
large metro	196	-23	31	-65	165	-1
small metro	175	-25	33	-64	142	1
large rural	158	-24	30	-65	129	3
small rural	151	-25	31	-64	120	6
Income (% poverty level)						
below	153	-21	24	-65	129	4
100 - 149%	161	-24	29	-64	133	1
150 - 199%	168	-23	30	-64	138	2
200 - 299%	183	-24	33	-64	150	1
300% and over	191	-28	37	-64	154	-3
Hospitalized						
yes	452	-25	79	-66	373	1
no	97	-25	18	-63	79	-2

Source: PPRC Simulations.

Note: Excludes enrollees who did not have claims and Medicaid beneficiaries.

[a] Areas are assigned by beneficiary's residence. Very large metro areas include counties in MSAs of 5 million or more population; large metro areas include counties in MSAs of 1 million population; small metro area are all other metropolitan counties. Large rural (non-metropolitan) counties have population of 25,000 or more; small rural includes all other non-metropolitan counties.

Table 5. Change in Medicare Payments[a] by Specialty

SPECIALTY	PERCENT CHANGE
Medical	20
Internal Medicine	17
Family Practice	38
Dermatology	1
Surgical	-11
Ophthalmology	-16
General Surgery	-10
Orthopedic Surgery	-7
Urology	-5
Thoracic Surgery	-20
Otolaryngology	6
Obstetrics/Gynecology	2
Hospital Based	*(na)*
Radiology	-21
Pathology	-25
Anesthesia	*(na)*
Other Physicians[b]	4

Note: [a] Does not include balance bills.

[b] Other Physicians includes physician specialties with data problems and those not evaluated in the Hsiao study: anesthesiology, cardiovascular disease, clinic, general practice, gastroenterology, nephrology, neurology, neurosurgery, plastic surgery, psychiatry, and pulmonary disease.

Table 6. Change in Payments by Geographic Area

AREA[a]	SPECIALTY GROUP	PERCENT CHANGE
Very Large Metro		
	Medical	-1
	Surgical	-25
	All physicians	-14
Large Metro		
	Medical	17
	Surgical	-12
	All physicians	-3
Small Metro		
	Medical	26
	Surgical	-7
	All Physicians	3
Large Rural		
	Medical	30
	Surgical	-6
	All Physicians	12
Small Rural		
	Medical	37
	Surgical	-7
	All Physicians	14

Note: [a] Very Large Metro areas include counties in MSAs of 5 million or more populations; large metro includes counties in MSAs of 1 million to 5 million population; small metro area are all other metropolitan counties. These areas accounted for 14, 37, and 33 percent respectively of Medicare allowed amounts in 1988. Large rural (non-metropolitan) counties have population of 25,000 or more; small rural includes all other non-metropolitan counties. These areas accounted for 9 and 7 percent, respectively of Medicare allowed amounts in 1988.

COMMISSION RECOMMENDATIONS

THE MEDICARE FEE SCHEDULE

The current CPR payment system should be replaced with a Medicare Fee Schedule (MFS) based primarily on resource costs incurred in efficient medical practice.

Relative Value Scale

Relative Work. The Hsiao study's estimates of physician time and effort should be used as the initial basis for the physician work component of the RVS in the Medicare Fee Schedule.

Practice Costs. Practice costs (expenses for nonphysician inputs) should be incorporated into the RVS through an additive formula.

To the degree that it is technically feasible, practice cost factors used in the RVS should apply to categories of services rather than to specialties.

Costs of professional liability insurance should be separated from other practice costs. They can either be integrated into the RVS through a separate practice cost factor or be reimbursed directly to physicians.

Specialty Training Costs. The RVS should not include an additional factor for the opportunity costs of specialty training.

Coding. The coding system for evaluation and management (EM) services should be revised so that visits are classified on the basis of time as well as site of service, type of patient, and referral status.

The legislative mandate to HCFA to group evaluation and management codes for payment purposes should be delayed until the above mentioned reform of coding for these services is completed.

Global payment for surgery should be based on the policy developed by the Commission for defining which services associated with an operation are to be included in the payment for the operation. This policy should be adopted by all Medicare carriers when the Medicare Fee Schedule is implemented.

Specialty Differentials

Specialty differentials should not be incorporated into the Medicare Fee Schedule.

Specialty-Specific Relative Value Scales

The Medicare Fee Schedule based on resource costs should determine payment to all physicians, including those currently paid under specialty-specific relative value scales.

Geographic Multiplier

Payments under the MFS should vary from one geographic locality to another to reflect variation in physicians' costs of practice. The cost-of-practice index underlying the geographic multiplier should reflect variation only in the prices of nonphysician inputs.

As part of the Medicare Fee Schedule, a uniform policy on the delineation of charge localities is needed.

Assignment and Balance/Extra Billing

Charges for unassigned claims should be limited to a fixed percentage of the fee schedule amount. This policy would replace the existing MAAC limits. The Commission does not have a recommendation for the specific percentage to be used.

Balance billing should not be permitted for any Medicare beneficiary whose cost sharing is paid by Medicaid.

The Participating Physician and Supplier Program (PAR) and its payment differential providing higher fees to participating physicians should be continued under the Medicare Fee Schedule.

Conversion Factor

The Medicare Fee Schedule is a fundamental payment reform. Decisions on payment updates should be made independently of this basic reform.

Transition

A transitional stage should begin in 1990, with implementation of the full Medicare Fee Schedule planned for 1992.

Monitoring Access

The Medicare program should devote greater efforts to monitoring access to care and the degree of financial burden experienced by beneficiaries.

Information gathered on access to care should be integrated into the annual update process.

Update Process

The process used to develop the fee schedule proposal--in which the Physician Payment Review Commission seeks the input of organizations representing physicians, beneficiaries, and other affected parties and develops recommendations to the Congress--should be used for updating the fee schedule as well.

EXPENDITURE TARGETS

The conversion factor should be updated annually through an expenditure target formula, so that the rate of increase of Medicare expenditures per enrollee determines in part the size of the conversion factor update.

The expenditure target should apply initially to all physicians' services nationally. The policy is expected to evolve, leading to incorporation of a broader range of services and to separate targets for regions and/or categories of physicians' services.

EFFECTIVENESS RESEARCH AND PRACTICE GUIDELINES

The Federal government should support effectiveness research and practice guidelines through increased funding, coordination, and evaluation.

For practice guidelines, federal funds should be used to support and build on initiatives by the medical profession and others in the private sector.

UTILIZATION AND QUALITY REVIEW

The Commission supports HCFA's current efforts to move toward a more comprehensive approach to medical review and calls for further actions to strengthen the review process. It has a number of specific recommendations to structure and focus this transition.

STRENGTHENING THE INFRASTRUCTURE FOR PAYMENT REFORM

Both improvements in the Medicare data system and adequate funding for program administration will be needed to implement the proposed reforms.

Improvements to Data System

Providers should file Medicare claims for all services--both assigned and unassigned--with no charge to beneficiaries. Claims should be submitted within 90 days after the delivery of service.

HCFA should establish comprehensive requirements for carrier electronic claims capabilities and provide technical assistance to carriers.

Electronic claims should be exempted from requirements for minimum processing times.

Funding

The Congress should provide adequate and predictable funding for program administration.

RISK-SHARING ARRANGEMENTS IN PREPAID HEALTH PLANS

Medicare should require prepaid health plans. to limit the total risk assumed by individual physicians or small groups through some form of reinsurance or "stop loss" provision, and it should require them to rely primarily on incentives to groups of physicians rather than to individual physicians. Health plans should also disclose to both physicians and enrollees appropriate information on risk-sharing arrangements.

HCFA should continue to strengthen its monitoring and review processes applicable to prepaid plans and should conduct periodic surveys of both current and former enrollees to assess both access to care and beneficiary satisfaction.

HCFA and others should conduct additional research to identify the effects of patient characteristics on the use of services and to assess the impact of risk-sharing arrangements on physician behavior and the accessibility and quality of care.

INTRODUCTION

The Physician Payment Review Commission (PPRC) was established to make recommendations to Congress for reform of Medicare payments to physicians. In accordance with its mandate, it has devoted much of its efforts to two major problems.

One is the distortions and inequities in the pattern of relative payments. Under the current payment method, payments for different services, and for the same service in different geographic areas, do not reflect the costs incurred by efficient physicians.

The other problem is rising costs. Despite numerous policy initiatives to constrain physicians' charges, Medicare spending per enrollee for physician services more than tripled between 1979 and 1989, increasing much faster than the rate of growth in per capita gross national product. This disparity causes great concern about affordability for both taxpayers and beneficiaries. At the same time, increasing evidence that a significant proportion of medical services have at best only negligible medical value further reduces the willingness of many to sacrifice private and public expenditures for other important purposes such as education, housing, and other components of health care.

To address these problems, the Commission has developed a comprehensive set of proposals. To deal with distortions in the pattern of payments, it proposes a Medicare Fee Schedule in which payments would be based on estimates of resource costs. To provide financial protection for beneficiaries under the fee schedule, it proposes to limit balance billing to a fixed percentage of the fee schedule amount.

To slow the rise in costs, the Commission proposes expenditure targets. Annual increases in fees would depend on how increases in expenditures per enrollee compare to a target rate of increase. To support physicians' efforts to contain costs, the Commission proposes increased funding of research on the effectiveness of medical services and federal support for and coordination of private efforts to develop practice guidelines for physicians. The Commission also proposes reforms in medical review by carriers and peer review organizations (PROs) that would increase coordination, improve the criteria by which physicians are judged, and focus more on the episode of illness than on individual claims.

THE MEDICARE FEE SCHEDULE

In its 1988 Report to Congress, the Commission recommended that Medicare pay physicians according to a fee schedule based primarily on resource costs. This report describes the Commission's proposal for a Medicare Fee Schedule that would replace the current payment method. It also describes a process for developing, implementing, and updating the fee schedule.

Medicare currently bases payment to physicians on a variant of the "customary, prevailing and reasonable" (CPR) method. Payments are determined on the basis of what the physician customarily charged for the service in the previous year and on what other physicians in the community charge.

This system has resulted in inconsistent and irrational patterns of payment among services, physicians, specialties, and locations. The financial reward for some surgical and technical procedures is much greater than for evaluation and management services like visits and consultations, so physicians have an incentive to favor the provision of surgical and technical procedures and to train in specialties that emphasize that kind of practice. Fees are much higher in very large metropolitan areas than in smaller cities or rural areas, giving physicians distorted incentives in choosing where to practice. Increasingly, physicians view the current pattern of payments as unfair, especially in the context of overall constraints on fees by Medicare.

The payment system has become increasingly complicated and confusing to both physicians and beneficiaries. Difficult to understand from the start, it has become increasingly complex as it has been modified by ad hoc constraints intended to counter the inflationary stimulus that is inherent in CPR.

Some have advocated a charge-based fee schedule arguing that charges are the outcome of a market for physician services, and so reflect not only physicians' costs but also value to the patient. But the Commission has concluded that the market for physicians' services does not function well. The combination of extensive health insurance, a lack of information on the costs and benefits of services, and the inability of patients to shop for physician services particularly when they are ill removes many of the forces that drive prices to competitive levels. Basing a new Medicare fee schedule on charges would perpetuate the distortions that have given rise to demands to change the payment system.

Under the Medicare Fee Schedule, fees for physician services would reflect the cost of providing them by an efficient physician. This approach would simulate pricing in a hypothetical competitive market. In such a market, competition would drive prices to reflect the relative costs of efficient providers. The result would be a reduction in the distortions in financial incentives faced by physicians in their clinical decisions, choice of specialty, and location of practice. Under the fee schedule physicians would expect similar financial returns for providing a surgical procedure, a consultation, preventive services, or a diagnostic procedure that involved similar time and effort.

Fee schedules can also be generated through negotiation between representatives of physicians and the federal government. The Commission has incorporated elements of negotiation both in the process it used to develop this proposal and in the process for updating the fee schedule (see Chapter 8). The Commission does not consider formal negotiation to be a feasible alternative for design of the initial fee schedule.

COSTS AND QUALITY

The relentless increase in costs of health care, and particularly physician services, has generated growing pressure to find ways to slow its growth. Most efforts to slow the growth of physician services have focused on the prices paid for them. These have met with limited success, in part because much of the growth in Medicare expenditures is due to increases in the utilization of services per enrollee. But there is convincing evidence that a significant proportion of medical services and procedures provide benefits that are either negligible or are smaller than the medical risks involved. These services waste our limited resources and keep the overall quality of care below its potential.

Over time, a Medicare fee schedule might help reduce the growth of spending through a more rational set of incentives to physicians and through improvements in coding. Reducing the excessive profitability of some services and procedures might reduce their use, but this could be offset by increases in payments for other services. In the short run, the effects of a fee schedule on volume are very uncertain, and it would not be wise to count on a fee schedule alone to address the problem of rising costs.

The Commission proposes to slow spending increases through three related policies:

- giving physicians collective incentives to slow growth in spending through expenditure targets;
- increasing research on effectiveness of care and developing and disseminating practice guidelines; and
- improving medical review by carriers and PROs.

Expenditure targets would provide greater impetus for the medical community to collaborate with the Medicare program to increase knowledge of the effectiveness of services, and to use this knowledge to improve the appropriateness of medical practice through more focused educational programs and stronger peer review. Expenditure targets would also signal to the beneficiary community--and to society as a whole--that medical needs must be met within the constraints of available resources.

Knowledge of the effectiveness and appropriateness of medical practices and procedures can be increased substantially through additional research, but funding for these activities has been very limited. Practice guidelines synthesize findings from research and the judgments of practicing physicians into a form that can be easily used. The scope and quality of this activity can be increased.

Medicare utilization and quality review should ensure that the medical care provided to beneficiaries is necessary and appropriate, is provided in a cost effective manner, and meets recognized standards of quality. Medicare review activities are evolving from more traditional approaches focused on individual claims toward comprehensive medical review for more effective management of the services beneficiaries receive. This process will take time and resources, as the roles of Medicare carriers and PROs are clarified, their activities are coordinated and stronger links are developed with the medical community.

Given the magnitude of the problems facing Medicare, policies beyond those discussed in this report will be needed as well. In the coming year, the Commission's work will extend into a number of additional areas.

It will explore the potential for changes in the way services are organized and delivered and in the management of care. In recent years there has been a great proliferation in the types of organizations and the techniques they use to influence the use of services. The organizations that manage clinical care and the techniques they use may be useful to Medicare.

The Commission will also explore the impact of medical tort liability on the cost and quality of care. Lack of consensus concerning what constitutes appropriate care makes it difficult for courts to determine whether a bad outcome was the consequence of substandard care. Physicians respond to their risk of being sued by practicing "defensive medicine". Reform of society's method of compensating those who are injured in the course of medical treatment may be essential to success in reducing unnecessary services and slowing the growth of expenditures.

The effects of the rapidly increasing supply of physicians and its increasing specialization is also of concern. Many believe that a substantial reduction in the rate of spending growth cannot be accomplished without addressing physician supply. Both the aggregate number of physicians and the proportion committed to primary care and geriatric care affect the kinds of services patients receive and the total costs of care.

While its mandate focuses on physician services delivered to Medicare beneficiaries, the Commission recognizes that Medicare policies may affect other third-party payers and that the response by these payers can affect the success of Medicare initiatives. For example, if other payers revise their payment mechanisms to be consistent with the Medicare Fee Schedule, its effects on medical practice, specialty choice, and geographic distribution are likely to be larger. Now that a comprehensive series of proposals for Medicare has been developed by the Commission, its members and senior staff plan to discuss common interests with employers and unions, with private insurers, and with Medicaid officials.

CHAPTER 1

THE CONTEXT FOR REFORM

In recent years, there has been a growing consensus among physicians, Medicare beneficiaries and government officials on the need to reform physician payment in the Medicare program. Pressure for reform has flowed from several sources. Expenditures for physician services have grown rapidly, placing an increasing burden on beneficiaries and taxpayers who share in the financing of Medicare program costs. Numerous policy initiatives to curb increases in physician fees have only had limited success in controlling spending. They have also raised concerns about diminished access to quality medical care and have further exacerbated the administrative complexity of Medicare's "customary, prevailing and reasonable" payment method.

The Physician Payment Review Commission was created by Congress to advise it on reforming Medicare physician payment. To provide a context for considering the changes proposed by the Commission, this chapter presents an overview of the Medicare program, trends in Medicare expenditures, use of health services by beneficiaries and their financial liability, and the number and characteristics of physicians who provide care to Medicare patients.

STRUCTURE OF THE MEDICARE PROGRAM

Enacted in 1965, Medicare is a social insurance program that finances health care services for over 32 million elderly and disabled persons. The program has two parts that pay for different types of services and are financed through different sources of funds. Part A, the Hospital Insurance (HI) program, provides inpatient hospital coverage, limited home care and skilled nursing facility benefits. Part B, the Supplementary Medical Insurance (SMI) program, covers the costs of most physician services and additional benefits such as clinical laboratory tests, durable medical equipment, and outpatient hospital care.[1]

Most Americans aged 65 and older are entitled to receive hospital insurance benefits under Medicare Part A. Ninety-seven percent of Part A beneficiaries have also chosen to enroll in Part B and pay a monthly premium.[2] Since 1981, the number of elderly Medicare enrollees has grown by about two percent annually. This rate is expected to accelerate sharply around 2010 as the baby-boom generation begins to reach age 65.

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[1] Medicare Part B covers specified services of dentists, podiatrists, optometrists, and chiropractors. It also makes payments to the employers of physicians' assistants and nurse practitioners for specified services provided by these health professionals.

Medicare also covers 3 million disabled persons under age 65 who become eligible following at least two years of disability or because of entitlement to the end-stage renal disease (ESRD) program. In recent years, the number of disabled (excluding ESRD) beneficiaries has grown by only 0.2 percent annually, while ESRD enrollees have increased by about 10 percent annually to 134,000 in 1988 (U.S. Congress, House, Committee on Ways and Means, 1989).

Program Benefits

Medicare pays primarily for acute care services. It does not cover some major medical expenses for the elderly such as long-term care and dental services. For other services, such as outpatient mental health services, there are limited benefits that provide only minimal coverage. Coverage for preventive services is also a notable exclusion. With current benefit exclusions and cost-sharing requirements, Medicare payments meet slightly less than half the total health care costs of the elderly.

The Medicare Catastrophic Coverage Act of 1988 expanded coverage for several services, but it retains current exclusions for preventive services and long-term care. Provisions of the Act include expanded coverage for hospitalization, care in skilled nursing facilities, and hospice care. New benefits include limited coverage of mammography, respite care, and prescription drugs. The new and expanded coverage affects beneficiary cost sharing, as explained later in this chapter.

Program Finances

The Part A Hospital Insurance Trust Fund is financed primarily through Social Security payroll taxes from employers, employees and the self-employed. The Congressional Budget Office estimates that between 1989 and 1994 outlays from the trust fund will rise at an average annual rate of 10.4 percent, while trust fund revenues are projected to grow only 7.1 percent annually. Despite an annual growth rate for expenditures exceeding the growth rate for revenues, current projections predict a positive balance in the trust fund at year's end through 1994 (Congressional Budget Office; the Office of Management and Budget; Health Care Financing Administration, 1989).

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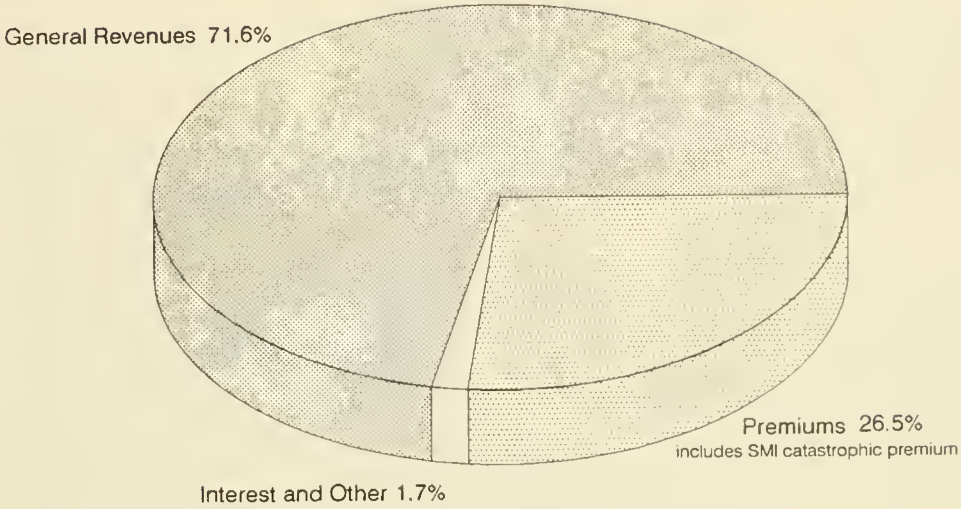
[2] Those elderly who are not eligible for Medicare Part A because their previous Social Security or Railroad Retirement payroll tax payments were below required levels have the option of obtaining Part A coverage by paying a monthly premium. Anyone older than age 65 can also enroll in Part B.

Figure 1-1. Part B (SMI) Trust Fund Revenues in FY 1989



Source: 1988 Annual Report of the Board of Trustees of the Federal Hospital Insurance and Supplementary Insurance Trust Funds and Congressional Budget Office.

Part B is financed by a combination of general revenues, beneficiary premiums and trust fund interest. In fiscal year 1988, the contribution of general revenues to total Part B trust fund revenues was $20 billion. In recent years, beneficiary premiums have covered about a quarter of program costs (Figure 1-1).[3] The monthly premium for 1989 is $27.90, a 12.5 percent increase over 1988 (Figure 1-2).

Financing for the new coverage provided under the Catastrophic Coverage Act will come from two new premiums. The first is an income-related, supplemental premium required of all Part A-eligible beneficiaries who have at least $150 in taxable income per year. The annual supplemental premium is based on a predetermined rate per $150 of tax liability. In 1989, the rate is $22.50 and the maximum payable by an enrollee is $800. In addition, a flat monthly premium is paid by all Part B enrollees. The 1989 flat premium of $4.00 is scheduled to increase to $4.90 in 1990 and continue to increase thereafter to cover program costs.

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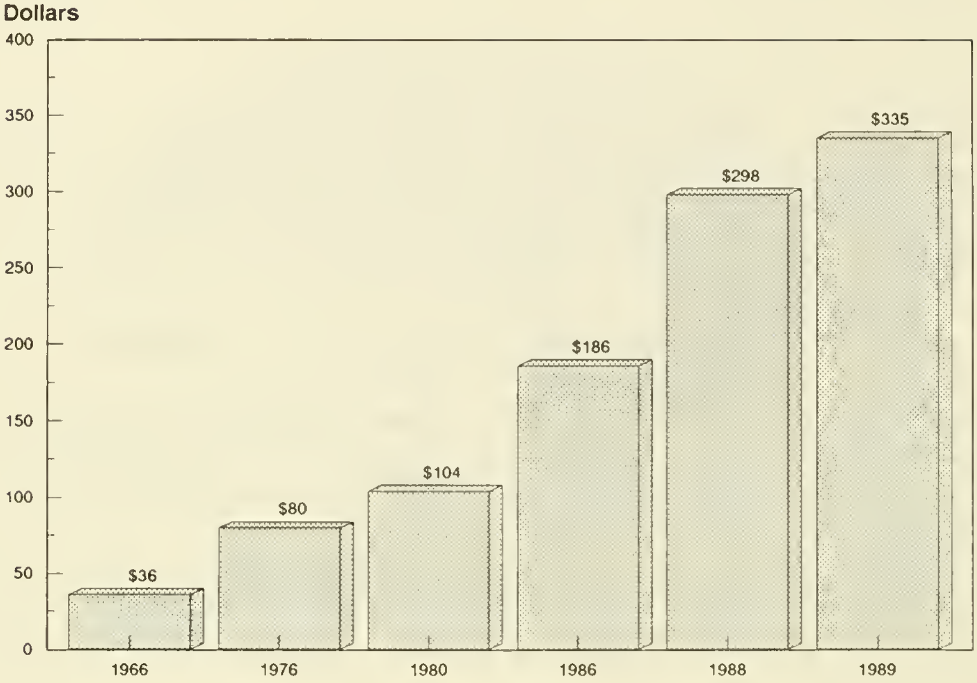
[3] Current law requires that the Part B premium be set at 25 percent of the average monthly benefit per aged enrollee.

Figure 1-2. Annual Premium[a], Selected Years, 1966 - 1989



Source: Health Care Financing Adminstration.

Note: [a] 1989 Premium increase does not include $4.00 Catastrophic premium.

The CPR Payment Method

Since its inception, Medicare has paid for physician services through a method referred to as customary, prevailing and reasonable (CPR). Using this method, the payment rate for each service is determined by what the physician has charged in the past (customary) and what other physicians in the community charge (prevailing). The reasonable allowed charge is the smallest of the actual charge of the physician, the customary charge or the prevailing charge. When the Medicare program was established, the CPR system was adopted in part because it recognized variations in charges for physician services. These variations were thought to reflect differences in patient preferences and physician behavior as mediated through established markets for physician services.

But the market for physicians' services is an imperfect one. Health insurance coverage can make patients and physicians less sensitive to price and can lead to distortions in the prices for some services. In addition, the introduction of new technology or a new method of performing a service is often associated with a high fee to compensate for the associated complexity. The prices of these new technologies often do not decline when they become part of the mainstream of care.

Over the two decades that CPR has been used, a system of pricing has evolved that is based on these historical fee patterns, the introduction of Medicare fee constraints, and carriers' discretionary definitions of geographic, specialty and other payment subcategories. This process has resulted in wide payment differentials among types of procedures, localities, specialties and sites of care that cannot be explained by differences in the costs of physicians' practices.

Although these payment differentials have not arisen from deliberate decisions to favor certain styles of practice on grounds of cost, quality, or access, they may nevertheless affect styles of practice because they provide financial incentives that influence physician decisions such as what services to employ in the care of patients, where to practice, and whether to specialize. Distortions in these incentives under CPR can reduce access to quality care as well as increase costs to beneficiaries and the Medicare program. Thus, the CPR system has been criticized as being inequitable for both physicians and beneficiaries.

In summary, a number of problems associated with the CPR method of physician payment have been identified:

- It encourages fee inflation.
- It creates distortions in relative payments for physician services, and among geographic areas.
- The payments are not predictable.
- The administration of the program is complex, time consuming and costly.
- Continued rising costs and expenditures have increased the taxpayer's burden and have eroded the financial protection of beneficiaries.

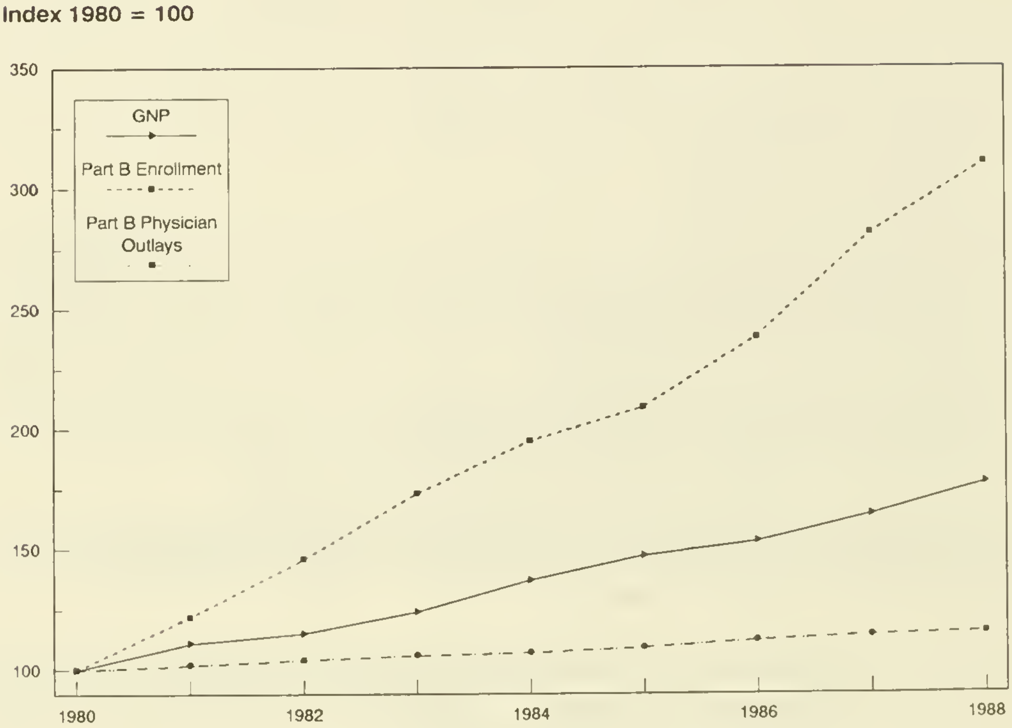
THE COST PROBLEM

Health care costs in both the public and private sectors have continued to rise despite a variety of efforts to control them. In the 1980s, the rate of increase in national health care expenditures accelerated in relation to the GNP. In 1988, U.S. health expenditures reached an estimated 11.1 percent of GNP and are projected to reach 12 percent of GNP by 1990. Between 1970 and 1982, per capita health expenditures increased by over 12 percent per year in nominal terms. From 1982 to 1985, this increase slowed, but in 1986 expenditure growth resumed its rapid climb (Division of National Cost Estimates, Office of the Actuary, HCFA).

Medicare Spending

Medicare outlays also have been increasing rapidly. Federal outlays for Medicare amounted to nearly $88 billion in fiscal year 1988. In 1989, the program will account

Figure 1-3. Trends in Real Medicare Expenditures, 1980 - 1988[a]



Source: Health Care Financing Administration, Bureau of Data Management and Strategy and U.S. Department of Commerce.

Note: [a] Enrollment for 1987 and 1988 are estimates. GNP for 1988 is an estimate.

for 7.6 percent of the entire federal budget and 1.7 percent of the GNP. Spending increases for Medicare have made the program a major target of policy reform and budget control efforts. Despite numerous steps to hold down spending, Medicare outlays increased, on average, 13.1 percent per year between 1980 and 1988.

The average annual rate of growth in Medicare expenditures in real dollars per beneficiary (adjusted for age) was 5 percent from 1970 to 1980, and increased to 5.6 percent between 1980 and 1987 (Long and Welch, 1988). This contrasts with rates of growth in health care costs for the general population for the same time period of 3.6 percent and 4.3 percent respectively.

Costs have risen most rapidly in Part B, with both rising prices and growth in the number of services used per beneficiary being the major contributors to the increases. Part B outlays have grown about 17 percent per year between 1980 and 1988 and currently account for about a third of total Medicare spending, approaching $35 billion in fiscal year 1988 (Figure 1-3). Physician services account for about 72 percent of Part B expenditures and have been increasing at nearly the same rate as total Part B expenditures. The growth in physician services per Medicare enrollee was recently estimated to be about 7 percent annually for the years 1980 through 1987.[4] Since the introduction of the Prospective Payment System (PPS), the compounded annual growth rate for physicians' services has been more than twice as great as the rate of growth for inpatient hospital services (Roper, 1988).

Recent HHS Analyses of Medicare Outlays

The Department of Health and Human Services commissioned two studies to examine the effects of recent policy changes and other factors, such as the introduction of new technologies, on Part B program expenditures. While the studies were not conclusive with regard to attributing expenditure increases to particular causes, they provide valuable insights into the components of rising costs. The major findings were that outpatient surgery increased in volume beyond what would have been expected from shifts in site of care related to the Prospective Payment System (PPS), a more expensive mix of outpatient surgeries were performed resulting in increased charges per service, higher intensity visit codes were used with increasing frequency, and shifts in the setting of some services resulted in shifts in payment from Part A to Part B. The results of these studies are described below.

The Mitchell Study. Mitchell and colleagues (1989) examined Part B expenditures from 1983 to 1986.[5] Medicare spending for physicians' services increased 29.5 percent during this time. Since much of the period was covered by a physician fee freeze, almost 75 percent of this increase was due to a growth in the volume of service per beneficiary and the substitution of more expensive for less expensive services.

Spending for three types of services increased most rapidly: surgery[6], radiology and specialized diagnostic tests. Surgery services per beneficiary rose 35 percent in the four year period accounting for 41 percent of the increase in spending. Diagnostic surgical procedures, such as colonoscopy and cardiac catheterization, were a driving force in the rise in spending for surgery. Sixteen procedures that represent almost 50 percent of Part B spending were studied in more detail. Six procedures for which volume increased the most between 1983 and 1986 are presented on the following page:

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[4] This estimate is based on PPRC analysis using data from the 1988 Annual Report of the Board of Trustees of the Federal Supplementary Medical Insurance Trust Fund.

[5] This research was based on pooled physician claims for four states: Alabama, Connecticut, Washington, and Wisconsin.

[6] The study defined surgery to include operations and invasive procedures.

Procedure	*Percent Change*
lens procedures	50
total knee replacement	39
coronary artery bypass graft	19
colonoscopy	121
sigmoidoscopy	216
cardiac catheterizations	85

Utilization of some surgical procedures decreased during this time. The decline for a few, such as carotid thromboendarterectomy, may be attributed to new evidence casting doubt on their clinical efficacy (Mitchell, 1989).

Radiology services per beneficiary increased 36 percent over the four year period, accounting for 15 percent of the increase in spending for physicians' services. New and expensive x-ray technology, such as magnetic resonance imaging (MRI) and computerized axial tomography (CAT scans) proliferated during this period. But increases in the volume of all types of radiological procedures contributed to the rapid increase.

Expenditures for non-surgical diagnostic tests grew faster than any other discrete category of service, rising 67 percent in four years. Specialized tests include pulmonary function tests, cardiac stress tests (treadmill tests), holter monitoring, and echocardiography. They accounted for almost 11 percent of the overall increase in spending for physicians' services during the four year period.

Medical services[7] accounted for only 18 percent of the increase. Analysis of data on physicians' visits revealed that there was a shift from inpatient to office visits following PPS, although the total number of yearly visits per enrollee remained the same. The increased expenditures for medical services was explained in part by the use of higher level codes to describe visit services (for example, intermediate rather than limited).[8] This trend may be a consequence of PPS. Shorter hospital lengths of stay and decreased admission rates result in sicker patients who require more intensive outpatient visit services. Alternatively, the change in coding may represent substitution of one code for another without a change in the services provided.[9]

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[7] Medical services consist mainly of visits to physicians. Consultations, a type of visit, accounted for 3 percent of the increased spending during this time period.

[8] Physicians use Current Procedural Terminilogy codes (CPT) to describe their services.

[9] The CPT codes for visit services are open to subjective interpretation and are not used uniformly by all physicians. See Chapter 3.

The Mitchell study raises the possibility that physicians increased the volume of certain services in response to a freeze on their fees. The researchers note that many of the procedures responsible for the increased expenditures are initiated by the physician and patients have a limited ability to judge their worth. However, both the authors and others have considered other plausible explanations for the increased volume. First, many services, such as x-rays and electrocardiograms, shifted from the hospital to physicians' offices (an effect of PPS) where Part B pays a greater share of the costs. Second, patient demand may have increased in response to a freeze on the real price of care. Finally, the magnitude of the increase for some services, such as cardiac catheterization and colonoscopy, is so great that most of the change could not be attributed to the fee freeze. Advances in technology and changes in medical practice may have been important factors affecting the increase in outlays.

The McMenamin Study. A second study analyzed the growth in Part B outlays between 1983 and 1985 (McMenamin, et al., 1988).[10] It analyzed the impact of enrollment, price and volume on Part B growth. They found that total Part B outlays in the five states studied increased by almost 19 percent, while beneficiary enrollment rose only 4 percent. The largest single source of growth was an increase in allowed charges for outpatient surgery[11], accounting for 40 percent of the increase in total outlays.

Two factors were identified to explain the increase in outlays for outpatient surgery. First, a more expensive mix of surgical procedures was performed in the outpatient setting. This is reflected in the fact that the average allowed charge per service for inpatient surgery remained about the same between 1983 and 1985, while the average allowed charge for outpatient surgery almost doubled. Second, the use of outpatient surgery grew very rapidly. The number of beneficiaries submitting claims for outpatient surgery doubled. Substitution of outpatient surgery for the observed decline in inpatient surgery would have explained only about 8 percent of the increase in outpatient surgery.

A second factor contributing to the increase in Part B outlays is additional claimants.[12] Although enrollment grew by only 4 percent, 11 percent more beneficiaries filed claims (or had claims filed for them) in 1985 than in 1983. By assuming that additional claimants utilize services at the same rate as other beneficiaries, the authors attribute 20 percent of the total growth in outlays to these beneficiaries. However, it has been argued that the data on these claimants is misleading because increased use of electronic billing by physicians during this time period may have resulted in more claims being filed. Also, random variation in the use of certain services (for example, surgery) over the relatively short time span could have accounted for the additional claimants. Until further analysis is completed, the impact of these beneficiaries on total outlays must be viewed with caution.

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[10] This study used 100 percent claims data from 5 states: South Carolina, Washington, Indiana, and North and South Dakota.

[11] Once again, this includes operations and invasive procedures.

[12] An additional claimant is a beneficiary who used and filed a claim for a particular type of service in a particular location in 1985, but not in 1983.

BENEFICIARIES

Medicare, along with Social Security and private retirement benefits, makes a major contribution to the financial security of the elderly. However, its ability to maintain that financial protection has been weakened by continued increases in expenditures that, among other things, have increased what beneficiaries must pay for their health care. Medicare's challenge will be even greater in the future as a growing proportion of the population reaches the age of 65.

The elderly have a greater need for medical services and use them more frequently. Even with Medicare, the burden of health care costs falls unevenly on the elderly population. The less well off (disproportionately women and minorities), the very sick, and heavy users of noncovered services face the greatest financial risk. The need to maintain financial protection for all beneficiaries and concern about the most vulnerable elderly have been major considerations in the Commission's work on payment reform.

To better understand the challenges to be addressed by changes in Medicare policy, this section begins by looking at the aging of the population and the economic status of the elderly and their use of health services. It then discusses the implications of rising health expenditures, Medicare coverage, cost-sharing policies, and the use of supplementary insurance coverage on beneficiary out-of-pocket costs.

The Aging of the Population

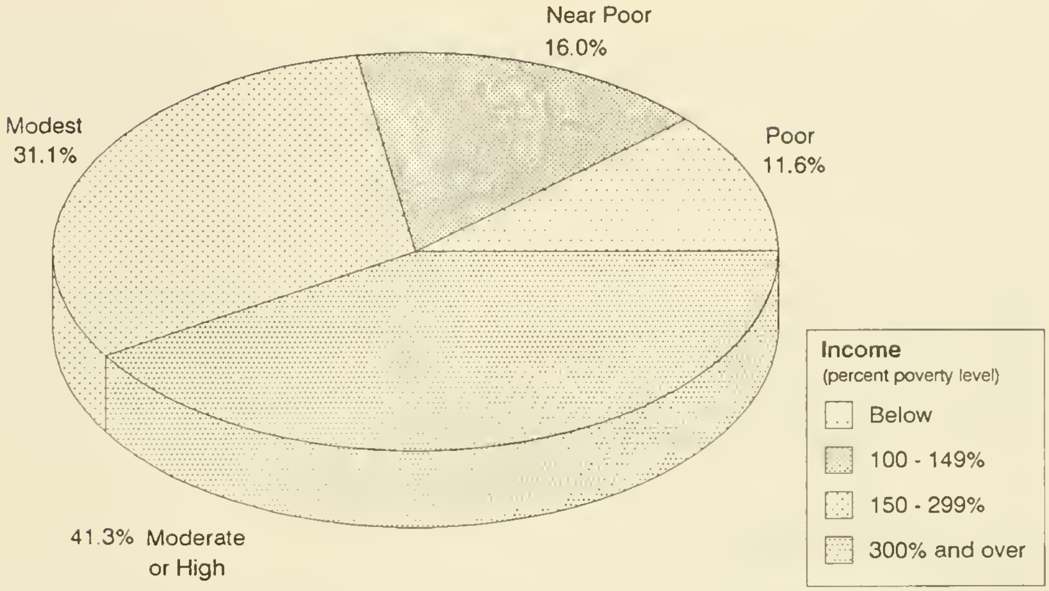
Those age 65 and older currently account for about 12 percent of the population. That figure will grow to 13 percent by 2000 and then increase rapidly to 22 percent by 2050, when Medicare will have more than 65 million beneficiaries.

Furthermore, the over-65 age group is itself aging. The percentage of the elderly who are age 75 or older is projected to increase from 39 percent in 1980 to 50 percent by 2000, with the fastest growth occurring among those age 85 and older (U.S. Congress, Senate, Special Committee on Aging, 1987-88).

Economic Status of the Elderly

With Social Security benefits, Medicare, and private retirement insurance benefits, the economic condition of the elderly has improved substantially in recent years (Gordon, 1986). The poverty rate for the elderly has declined from more than 29 percent in 1967 to 12 percent in 1987 (U.S. Senate, Special Committee on Aging, 1987-88). However, another 16 percent of the elderly live on incomes between 100 and 149 percent of the poverty level, compared with only 8 percent of the

Figure 1-4. Income Distribution of the Elderly, 1987



Source: The Commonwealth Fund Commission on Elderly People Living Alone.

nonelderly (Figure 1-4).[13] In all, about 62 percent of the elderly have modest annual incomes of less than $18,000 (Bureau of the Census, 1988). Furthermore, as many as a third of the near-poor elderly would be considered impoverished if their out-of-pocket medical expenses were deducted from their available income (The Commonwealth Fund Commission on Elderly People Living Alone, 1987).

Particular segments of the elderly population suffer disproportionately from poverty. In 1986 persons age 85 or older were nearly twice as likely to be poor as those between the ages of 65 and 74. The economic well-being of the elderly also varies considerably by race and sex. Elderly women are almost twice as likely to be poor as elderly men. Hispanics are twice as likely as whites to be below the poverty level, while blacks are about three times as likely (U.S. Congress, Senate, Special Committee on Aging, 1987).

Utilization of Services

Elderly persons use more health services than other age groups. They account for 30 percent of all hospital discharges, 20 percent of all doctor visits, and one-third of the country's personal health care expenditures, even though they constitute only 12 percent of the population. When they are hospitalized they stay about 50 percent longer than the general population (U.S. Congress, Senate, Special Committee on Aging, 1987-88).

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[13] In 1987 the federal poverty level was $5,447 for a single elderly person and $6,872 for a couple.

Elderly persons make up the majority of patients receiving certain procedures. They received eighty percent of pacemaker and lens extraction and insertion procedures and about 75 percent of prostatectomies and hip replacements. The elderly also have higher rates of chronic illness and use more prescription drugs, and medical equipment and supplies than the rest of the population.

Poor elderly persons are twice as likely to report their health status as fair or poor those with moderate or high incomes. They also experience more chronic illness and greater functional impairment (The Commonwealth Fund Commission on Elderly People Living Alone, 1987). A key factor explaining the higher use of services by low income beneficiaries who have both Medicare and Medicaid coverage is that they are typically in poorer health (Christensen, 1987).

Out-of-Pocket Expenses

Out-of-pocket expenses are those costs of medical care that beneficiaries must bear themselves. Total out-of-pocket spending includes: Part B and Medigap[14] premiums, coinsurance and deductibles for Parts A and B, billed amounts that exceed Medicare approved charges, and charges for uncovered services.

Out-of-pocket costs for individual beneficiaries can vary substantially depending on their use of uncovered services, whether they have Medigap or Medicaid coverage, whether they have been hospitalized, and whether they receive services from physicians who accept assignment.[15] The average out-of-pocket health care cost per beneficiary was about $1,700 in 1988 (U.S. Congress, House, Select Committee on Aging, February, 1989).[16]

Spending for health care services poses a significant financial burden on elderly persons. While Medicare pays about three-quarters of hospital costs and slightly over half of physician costs,[17] beneficiaries are responsible for much of the remainder. Older persons spend about 15 percent of their income on medically-

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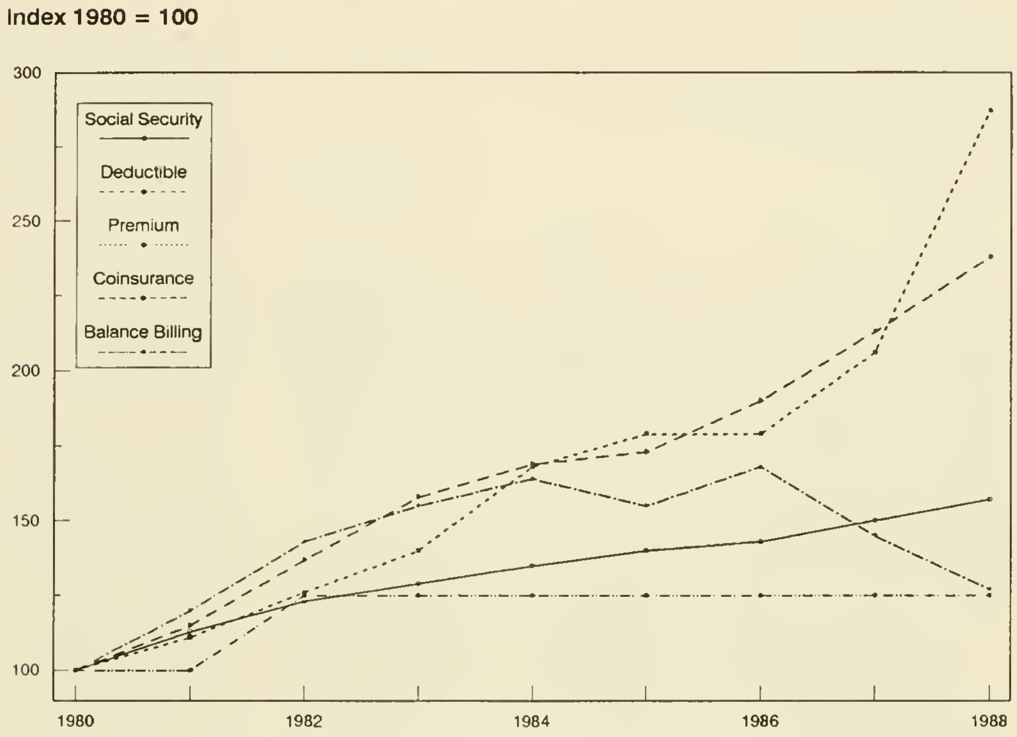
[14] Medigap is private insurance that supplements Medicare coverage.

[15] Issues related to assignment and beneficiary liability for extra billing are discussed in detail in Chapter 7, Chapter 9, and Appendix E.

[16] This figure does not include the costs borne by beneficiaries for long-term care. Long-term care costs affect roughly 5 percent of the elderly and average about $20,000 per year (Moon, 1987).

[17] The amount for physician costs includes premium revenues from beneficiaries.

Figure 1-5. Trends in Social Security Benefits and Part B Out-Of-Pocket Costs, 1980 - 1988



Source: Congressional Budget Office and Health Care Financing Administration.

related expenses, roughly the same proportion as when Medicare was enacted (Congressional Budget Office, 1986).[18] The burden of medical care costs falls most heavily on those with very large medical bills and those with little or no supplemental coverage. The poor and near poor not covered by Medicaid are particularly affected and as a result, are more likely to postpone medical treatment for financial reasons (PPRC Survey of Medicare Beneficiaries, 1988). The majority of approved charges[19] for physician services are concentrated on a small proportion of Medicare beneficiaries. In 1986, the 16 percent of beneficiaries who had over $1,000 in approved charges accounted for over 76 percent of total expenditures. In contrast, the 64 percent of beneficiaries who had $250 or less in approved charges accounted for only 5 percent of expenditures.

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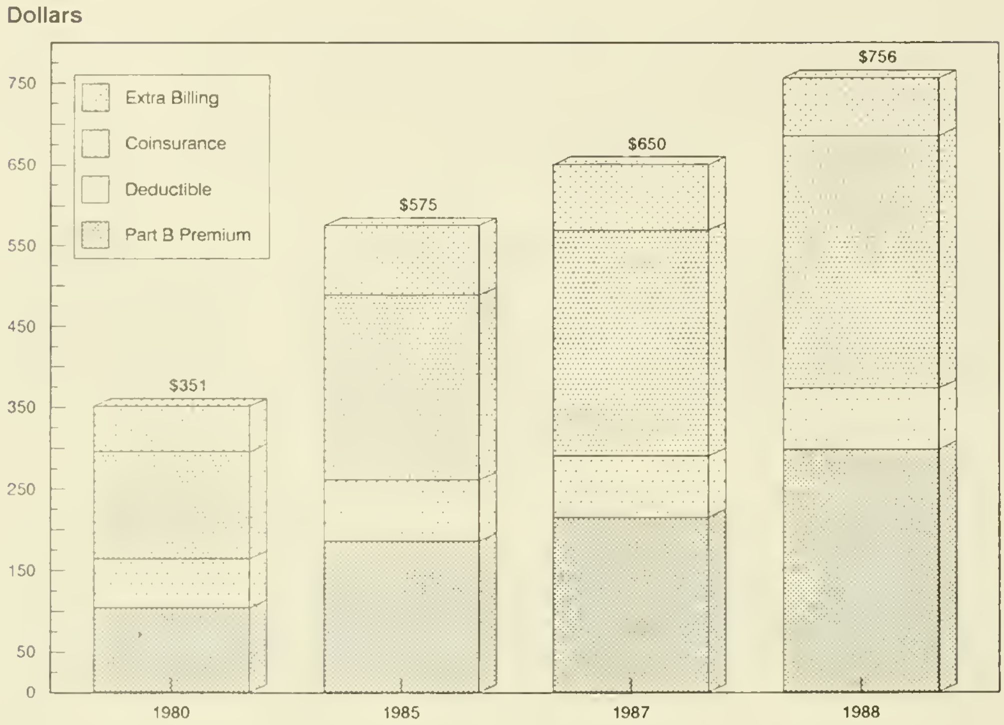
[18] This should not be interpreted to understate the important contribution Medicare has made to assuring access to and protecting beneficiaries from the high costs of medical care.

[19] The Medicare share of the approved charge is 80 percent with the remaining 20 percent covered by the beneficiary's coinsurance. The approved charge does not include balance billing.

Figure 1-6. Average Annual Out-Of-Pocket Costs per Medicare Beneficiary for Covered Part B Services, 1975 - 1988



Source: Health Care Financing Administration and Social Security Administration.

Note: The drop in balance billing in 1986 coincides with the implementation of Maximum Allowable Actual Charges (MAACs). For futher information see Appendix E.

Beneficiary financial liability for services covered under Part B has grown faster than Social Security benefits since 1975 (Figure 1-5). Beneficiaries spent an average of $756 for Part B services in 1988, up from $351 in 1980 (Figure 1-6). The monthly premium for Part B enrollees in 1989 is $27.90, or $335 a year, up from $36 a year in 1966, and 12.5 percent higher than the 1988 premium (Figure 1-2). When the $4.00 premium for catastrophic coverage is included, the total premium for 1989 will be $31.90 a month, or a 29 percent increase over what beneficiaries paid in 1988. Thus, in 1989, non-Medicaid beneficiaries without any Medicare claims will have a potential out-of-pocket liability of at least $383 for the Part B and catastrophic premium. They may also have expenses related to the $75 deductible and balance billing. In addition, beneficiaries with incomes above $17,285 will face an income-related supplemental catastrophic premium ranging from $78 to $800 in 1989 (Congressional Research Service, 1989).

To protect themselves against substantial out-of-pocket costs, the majority of elderly people (71 percent) now have private supplemental insurance coverage. Another 9 percent have Medicaid coverage. However, in 1988, 20 percent of the elderly had no protection for the expenses not covered by Medicare. Furthermore, poor and near-poor Medicare beneficiaries without Medicaid, who are least able to afford the costs of major illnesses and most in need of supplemental coverage, are the least likely to have private supplemental insurance. The oldest and sickest Medicare beneficiaries are also much less likely to purchase supplemental insurance (PPRC Survey of Medicare Beneficiaries, 1988).[20]

The average Medigap premium is between $500 and $700 a year (HIAA estimate, 1989). These policies generally cover part or all of the Medicare deductible and coinsurance, plus hospital expenses beyond Medicare limits. About 20 to 30 percent of these policies cover some of the costs of physicians' bills in excess of Medicare approved charges, but protection for such uncovered services as prescription drugs and long-term care is unusual. Due to private insurance premiums, beneficiaries with Medigap pay about 18 percent more in out-of-pocket costs than those with Medicare alone. However, their potential financial liability from illness is greatly reduced. For beneficiaries who qualify, the Medicaid program covers required beneficiary cost sharing and certain additional services. In most states Medicaid also covers outpatient prescription drugs, a major expense for elderly persons. Balance billing is not permitted for Medicare beneficiaries who also have Medicaid.

However, having a low income does not necessarily mean that an elderly person will be eligible for Medicaid coverage. Medicaid provides coverage for only 29 percent of the poor and 8 percent of the near-poor elderly. These groups have the highest proportions of elderly who rely on Medicare coverage alone. Despite an average annual cost of between $500 and $700, nearly 42 percent of the poor elderly and almost two-thirds of the near-poor elderly purchase private supplemental insurance, spending as much as 10 percent of their limited incomes for this protection (The Commonwealth Fund Commission on Elderly People Living Alone, 1987; PPRC Survey of Medicare Beneficiaries, 1988). Another 8 percent of Medicare enrollees (those who are poor but are not now receiving Medicaid benefits) could potentially benefit from a new provision of the Catastrophic Coverage Act of 1988. Under this provision, state Medicaid programs will be required to pay the premium, copayment, and deductible costs for these beneficiaries (see Chapter 7).

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[20] For further discussion see Chapter 7.

Table 1-1. Cost-Sharing Under Medicare, 1989

MEDICARE PART A	BENEFICIARY LIABILITY
Hospital deductible	$560 for first stay/year
Skilled nursing facility coinsurance,	
Days 1-8	$ 25.50/day
Days 150 on	All costs
MEDICARE PART B	
Premium* ($31.90 per month)	$383 per year
Deductible	$ 75 per year
Coinsurance	20% of Medicare allowed charges
Balance Billing	All excess up to MAAC

*Includes catastrophic premium of $4.00/month. Also, the Catastrophic Coverage Act is financed by an income-related premium for beneficiaries with at least a $150 of annual tax liability (up to $800 in 1989).

Source: The Congressional Budget Office.

Catastrophic Coverage Act

The Catastrophic Coverage Act of 1988 represents the largest expansion of Medicare benefits since the program's inception. The Congressional Budget Office estimates that approximately 22 percent of Medicare enrollees will benefit each year from the increased coverage once the Act is fully implemented (Congressional Research Service, 1989). It expands Medicare coverage for acute illness and includes partial coverage for outpatient prescription drugs. Previously, Medicare covered up to 90 days of inpatient hospital care per illness, plus up to 60 lifetime reserve days. Under the catastrophic legislation, Medicare covers an unlimited number of hospital days once an annual deductible is paid, and it eliminates all coinsurance. Medicare currently pays for all drugs administered in the hospital but covers only 3 percent of beneficiary outpatient drug costs. Beginning in 1991, Medicare will cover 50 percent of outpatient drug costs after payment of a deductible. The Act also expands coverage for short-term nursing home, hospice, and home health services and places an annual limit on beneficiary liability for the deductible and coinsurance associated with Part B services.[21] (See Table 1-1).

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[21] The upper limit will be $1,370 in 1990, and will be indexed to inflation in subsequent years. This limit does not include expenses incurred from balance billing.

PHYSICIANS

Physicians' decisions about the care of their patients affect the use of services throughout the health system. How physicians practice medicine is influenced by many factors, including the number and distribution of physicians and the arrangements under which they practice. The relationship between Medicare and physicians is a dynamic one. Medicare has become increasingly important to physicians who treat program beneficiaries, accounting for about 24 percent of their gross revenue.[22]

Physician Supply and Distribution

Expenditures for medical services and the quality of care are affected by the growing numbers of physicians and the changing context in which they practice. It has been estimated that each physician generates about $500,000 in expenditures annually (AMA, 1987). There are currently over one-half million physicians practicing in the United States, about one-fifth of whom are foreign medical graduates. From 1970 to 1986, the number of physicians grew from 326,000 to 545,000, increasing the physicians to population ratio from 156 to 225 per 100,000. The number of physicians is projected to reach 709,000 in the year 2000, with a ratio of 264 per 100,000 (Bureau of Health Professions, June 1988).

Because of the difficulty in projecting need and supply in a system that is changing rapidly, the adequacy of physician supply continues to be a subject of debate. Some have warned that the nation faces an expensive oversupply of physicians, while others predict little or no surplus. The final report published by the Graduate Medical Education National Advisory Committee (GMENAC) in 1980 forecasted a surplus of 145,000 by the year 2000. The chairman of GMENAC now thinks that the projected surplus could have been considerably underestimated because of the increasing presence of health maintenance organizations (HMOs) that provide services with a lower ratio of physicians to population.[23]

To the extent that enrollment in HMOs continues to rise, the ability of the health care system to absorb the growing numbers of physicians is significantly reduced. For example, with an assumption of HMO employment of 120 physicians per 100,000 population, and the prediction that 120 million Americans (44 percent) will be enrolled in prepaid health care by the year 2000, only 132,000 HMO or independent practice association (IPA) physicians would be needed to care for this group. Based on the GMENAC estimates, there will be 500,000 physicians left to care for 150 million people (Haglund, 1986).[24] The results could be a decline in demand for physician services, fewer hours of work per physician per week, and possible unemployment.

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[22] Unpublished PPRC analysis has shown that Medicare accounts for 32 percent of the gross revenue of physicians in specialties that treat Medicare patients.

[23] The view of Dr. Alvin Tarlov was reported in an article in *Medical Tribune*, July 23, 1986.

In 1988, the Bureau of Health Professions projected a surplus of 72,000 physicians in the year 2000, less than half of GMENAC's projection. In 1988, Schwartz, Sloan, and Mendelson projected little or no physician surplus by the year 2000. They based their projections on different assumptions than GMENAC and predicted an increased demand for physicians as a result of technical innovation (Schwartz, 1988).

Other practitioners, such as nurse practitioners and physician assistants, can provide medical services to beneficiaries, and their practice opportunities can also be affected by physicians' responses to increasing competition in the labor market. This is particularly important because most are limited by Medicare to providing care under the supervision of physicians and are paid indirectly through their employers.

The growing supply of physicians has created a greater sense of competition among practitioners. As this pressure intensifies, it will affect physician choice of specialty, location, and type of practice. In theory, the growing number of physicians should improve access to care in certain areas of the country. Some analyses indicate that this growth has caused diffusion of physicians (particularly of specialists and subspecialists) into small cities and nonmetropolitan areas (Newhouse, et al., 1982; Schwartz, et al., 1988). Most studies found that the higher the number of physicians in a given subspecialty, the more widely distributed its practitioners were (Schwartz, et al., 1988).

The growth rate of different specialties also varies greatly. The Department of Health and Human Services projected an overall increase of 28 percent for all physicians between 1986 and 2000. However, an increase of only 15 percent is projected for general and family practice, while other specialties such as anesthesiology (43.9 percent), diagnostic radiology (38.9 percent), gastroenterology (75 percent), and surgical specialists (21 percent) are expected to increase much more rapidly (Bureau of Health Professions, June 1988).

Professional Liability

Recent increases in physicians' professional liability insurance premiums have been responsible for a portion of higher expenditures for physician services. Between 1982 and 1987, professional liability insurance premiums have increased at an annual rate of 21 percent, and they account for a substantial fraction of some physicians' practice expenses (Gonzalez, 1988). While premiums were about 6 percent of gross revenues for physicians as a group in 1987, they exceeded 10 percent for several surgical specialties. The threat of malpractice liability may also influence the way physicians practice, motivating them to practice "defensive medicine" by ordering more tests or providing services of minimal benefit.

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[24] These projections are based on the 1980 GMENAC study and, therefore, do not match the 1988 Bureau of Health Professions estimate previously cited.

Physicians' Incomes

Leaders of organized medicine contend that the increasing supply of physicians is having a detrimental impact on their incomes (Freudenheim, 1986). But estimates of physicians' income from surveys of physicians do not support this view. In 1987 physician net incomes averaged $132,000, more than twice the 1978 level (Gonzalez, 1988). After adjustment for inflation, physicians' average net income rose by 13.3 percent between 1975 and 1987 (Gonzalez, 1988), while average income for all full-time, year-round U.S. employees increased only 3 percent (Bureau of the Census, 1988). As a result, physicians' average income increased from 4.4 times that of an average full-time employee in 1975 to 4.8 times that of an average full-time employee in 1987.

Incomes differ among specialists and these differences have been growing over time. Surgeons, radiologists, and anesthesiologists have the highest average incomes; pediatricians, general and family practitioners, and psychiatrists have the lowest. Surgeons' average income of $162,400 in 1987 was 36 percent above the average compensation for all physicians. While real net incomes increased each year between 1977 and 1987 for anesthesiology (2.8 percent), surgery (3.3 percent), and radiology (2.5 percent), they remained relatively stable for other specialties, such as internal medicine (0.7 percent) and decreased for others, such as general/family practice (-0.3 percent) and pediatrics (-0.6 percent) (Gonzalez, 1988).

Incomes also vary considerably by region. In 1987, net income ranged by census division from an average of $107,100 in New England to $129,000 for the West South Central area. Mean income in nonmetropolitan areas was $107,700; it was $124,500 in metropolitan areas with populations smaller than 1 million, and $117,500 in metropolitan areas with more than 1 million people (American Medical Association, 1987).

CONCLUSION

The problems discussed here make Medicare Part B a primary target for reform. It is clear that an integrated strategy of reform is necessary to achieve the multiple objectives of the Medicare program. Policy reforms must focus on multiple, and often conflicting goals, such as reducing the growth of Part B expenditures, ensuring access to quality medical care, protecting the financial security of beneficiaries, and promoting equity in payment to physicians. The Commission's recommendations are designed to balance these goals while moving to a more rational payment system.

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CHAPTER 2

A MEDICARE FEE SCHEDULE: THE RELATIVE VALUE SCALE

RECOMMENDATIONS

The current CPR payment system should be replaced with a Medicare Fee Schedule (MFS) based primarily on resource costs incurred in efficient medical practice.

The Hsiao study's estimates of physician time and effort should be used as the initial basis for the physician work component of the RVS in the Medicare Fee Schedule.

Specialty differentials should not be incorporated into the Medicare Fee Schedule.

The Medicare Fee Schedule should determine payment to all physicians, including those currently paid under specialty-specific relative value scales and fee schedules.

The Medicare Fee Schedule developed by the Commission is composed of a relative value scale (RVS) based on resource costs and a conversion factor, and is adjusted by a geographic multiplier. In this RVS, the relative value for each physician service has two components reflecting the two kinds of resources required to provide the service: the physician work and the associated practice costs. The relative work component is based largely on the estimates of Hsiao, Braun, Becker et al. (1988a,b).[1]

This chapter describes the development of a scale of relative physician work for the Medicare Fee Schedule. It also describes the particular scale that Hsiao developed and explains its implications for payment for physician services. Chapters 3 and 4 describe additional work by the Commission to improve the coding for evaluation and management services and surgical operations, and methods to assign relative values to these services. Chapter 5 describes how practice costs are estimated for each service in the relative value scale.[2]

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[1] This reference is to the report entitled *A National Study of Resource-Based Relative Value Scales for Physician Services: Final Report* by Hsiao, Braun, Becker et al. The work of Hsiao and colleagues was reported to the Health Care Financing Administration as *A National Study of Resource-Based Relative Value Scales for Physician Services: Final Report* in September 1988, and *A National Study of Resource-Based Relative Value Scales for Physician Services: Supplemental Report* in December 1988. Much of the material in the September report was summarized in the *Journal of the American Medical Association*, October 28, 1988. Each of the relevant articles from that issue of *JAMA* is also listed in the References to this chapter, though not all are cited in the text of the chapter.

The Medicare Fee Schedule would not incorporate specialty differentials. Specialty differentials--differences in payment to physicians of different specialties for the same procedure code--occur extensively under CPR payment (Physician Payment Review Commission, 1988). In the Medicare Fee Schedule, specialty differentials could arise through the values for relative work or practice costs.[3] This and the two following chapters explain how differences in work among physicians in different specialties can be accounted for without specialty differentials. Chapter 5 explains how practice costs can be assigned to physician services without using specialty differentials.

The Medicare Fee Schedule would include all physician specialties. The chapter concludes with a discussion of relative values for anesthesiology, radiology, and pathology, three specialties for which separate relative value scales have been implemented or are planned.

A RELATIVE VALUE SCALE BASED ON RESOURCE COSTS

A relative value scale based on resource costs determines the amount that Medicare will pay for each physician service relative to all other physician services. The most difficult task in developing such a relative value scale is estimating relative physician work. The Commission uses as its starting point the important work of Hsiao and colleagues in developing a scale of relative work for a resource-based relative value scale (Hsiao et al., 1988a,b). The study, directed by Professor William Hsiao of Harvard University and funded by the Health Care Financing Administration, began in 1986. The results of the first phase of the study, which included 18 specialties, were reported in late 1988. The study is to be completed in 1990.

Completion of the first phase of the study allowed the investigators to test and improve their methods before proceeding with the balance of the study. It also provided an opportunity for the Commission and others to evaluate the study's methods and their application to the 18 initial specialties.

This chapter describes the Hsiao study, summarizes the Commission's evaluation of it, and describes the additional tasks necessary to produce accurate values for relative work for physician services. The preliminary results of the study are also summarized. A more extensive description of the study and the Commission's evaluation is in Appendix A.

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[2] The geographic index and conversion factor are described in Chapters 6 and 8.

[3] The resource-based relative value scale developed by Hsiao et al. (1988) would include specialty differentials from a third factor, the opportunity costs of training. The Commission's Medicare Fee Schedule does not include an explicit factor for costs of training because these resources are reflected in increased skill and knowledge, which are accounted for in the estimates of relative work.

The Commission has concluded that the basic approach and methodology for estimating relative physician work developed by Hsiao et al. are sound, and can produce reliable and valid results for relative work. However, there are several areas where the methodology must be improved. Once the methodology has been refined, the data from those specialties already studied in Phase I must be reanalyzed and in some cases individual specialties must be restudied with the improved methodology.

The major methodological improvements needed are a better method for estimating pre- and postservice work (or directly estimating total work), and improving and validating the method for extrapolating from estimated services and procedures to all physician services. In addition, applying the methodology in Phase II should include several other improvements, such as more crosslinks for some of the specialties, more clearly defined vignettes, and better instructions to physicians surveyed in order to be sure that each is qualified to provide estimates for the surveyed services.[4]

Hsiao and colleagues have begun work to refine these and other elements of the methodology, and to reanalyze and restudy the results of the first eighteen specialties (Hsiao, 1989). Upon satisfactory completion of Phase II of the study and revision of the results of Phase I, the Commission would use the study's values for time and relative work in constructing a relative value scale based on resource costs.[5]

The Commission believes that all of these tasks can be completed and that reliable and valid estimates for relative work for all physician services can be developed within the next 12-18 months, in time for incorporation into a resource-based fee schedule to be implemented no later than 1992. Preliminary estimates available late in 1989 could be used to construct an interim fee schedule for use in transition for 1990 and 1991.[6]

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[4] In addition to this work, the coding system for evaluation and management must be improved and definitions of surgical global services must be standardized before relative values can be accurately assigned to these services. The Commission has already developed standardized global service definitions, and it is developing modifications for evaluation and management codes and a method for assigning relative values to them as described in Chapters 2 and 3.

[5] The Hsiao study was designed to develop a resource-based relative value scale composed of three elements: relative physician work, practice costs, and a factor to account for the opportunity costs of advanced medical training. While the Commission will draw extensively on the estimates of relative physician work from the Hsiao study, we will develop new estimates of practice costs (see Chapter 5) to replace those developed in the Hsiao study. The Commission has also concluded that the training cost factor is redundant and should not be included in its resource-based fee schedule.

ESTIMATING WORK FOR PHYSICIAN SERVICES

Determining the "resource costs" of physician work is both conceptually and practically difficult. In contrast to overhead costs such as office space and clerical assistance, the physician's efforts are not purchased in a market, but are provided by the physician directly as the owner of the medical practice. Since the value of physicians' time and effort cannot be based on market data, some other source of information must be found.[7]

Hsiao and his colleagues developed a method for estimating the relative physician work required to provide each of the many physician services. The method defines work as time and effort and asks practicing physicians to estimate the work required for each service relative to a standard service. The physicians' estimates of work are then used to develop a scale that specifies the relative work of all physician services.

Throughout this section of the report, the terms "work" and "relative work" mean the average work of a physician of average efficiency relative to an arbitrary standard.[8] Since there are no absolute units for work, only relative work can be determined. The relative values or fees (and therefore payment for a service) do not depend on the amount of work expended by a particular physician for a particular patient, but rather on the average for all physicians who provide the service.

Methodology to Estimate Relative Physician Work

The method developed by Hsiao and colleagues can be described as a series of steps:

- a model of physician work is developed that compartmentalizes work into preservice work, intraservice work, and postservice work,

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[6] The Commission recommends that the fee schedule be fully implemented in 1992, after implementation of a transitional fee schedule in 1990 and 1991 (see Chapter 8).

[7] Some have suggested using compensation of physicians in staff model HMOs as a guide to market-based relative values. These organizations often purchase their physician inputs in the market. But the prices paid are determined in large part by the competition--earnings of self-employed physicians, which reflect the current pattern of charges. Thus using data from staff model HMOs would tend to introduce the current pattern of relative charges into an attempt to use a different basis to determine relative values.

[8] Ideally, the relative values for work would be based on the average for efficient physicians, rather than the average for all physicians, but that information is not generally available.

- "vignettes", describing patient characteristics and the physician service or procedure to be provided, are developed for a representative sample of about 20-25 services for each physician specialty, with each vignette intended to represent the average service for a corresponding procedure code from the Common Procedure Terminology (CPT),

- a representative national sample of physicians is selected from each specialty and surveyed for estimates of the time and work required for each service in the specialty,

- after removal of "outlier" responses, the individual physicians' estimates of relative intraservice work are statistically averaged for each vignette or service in the sample, yielding a scale of relative intraservice work for 20-25 services in each specialty,

- pre- and postservice work is estimated and combined with intraservice work for each service to construct a single scale of relative total work for each specialty,

- the scales of relative work for all specialties are statistically linked through services considered the same or equivalent between two specialties to form a single scale of relative work for all specialties, with only one relative value for each service,

- each vignette is again assigned a corresponding service or procedure code from the Common Procedural Terminology (CPT) nomenclature used by Medicare so that each total work value is accurately associated with a CPT code,[9]

- using existing charge relationships within small families of services and procedures, the relative work values for the sample of estimated vignettes are extrapolated to those services that were not surveyed, generating a scale of relative work for all physician services.

Specialty panels of physicians provide technical advice to the research group, including clinical advice on the development of the vignettes, the appropriateness of the survey questionnaire, and the reasonableness of the results. An interspecialty panel assists in identifying services that are the same or equivalent across specialties, so that the relative values created for each specialty could be linked across specialties.

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[9] Each vignette was developed to correspond to a particular CPT code in an earlier step. Though most vignettes were later assigned that code in this step, some were assigned a different code. This occurred largely for vignettes for evaluation and management services.

EVALUATION OF THE RBRVS STUDY: RELATIVE WORK

The Commission carefully evaluated the approach and method used in the Hsiao study to determine whether it could be expected to yield accurate values for relative work for a Medicare fee schedule. The Commission's evaluation focused on the soundness of the overall approach and the methodology employed, and how well the methods were applied in Phase I of the study. Where shortcomings were identified, we determined what improvements in the methodology or its application would be required to improve the estimates for the relative work of physician services.

In the process of evaluating the study, the Commission held two public hearings to hear the views of all interested parties. Commission staff have met with many interested groups and individuals to discuss further their comments, questions, and criticism of the study and its results. The Commission staff has conducted technical evaluations of several elements of the study, and has conferred with several consultants in statistics, psychometrics, and health services research, and with physician consultants conversant with research methods. The Commission staff has also examined several evaluations prepared by others, particularly that of Etheredge and Dobson (1988).

Reliability and Validity

In evaluating a study, one examines the reliability and validity of the results and the method that produced them. Reliability is essentially reproducibility: if the study were done more than once, would the estimates be about the same? If not, one cannot have confidence in the estimates. Validity is essentially whether the estimates are true, or whether the method measures what it is intended to measure. Do the estimates really reflect the relative physician work of the vignettes and the codes with which they will be matched? If not, the estimates would not provide a good basis for a resource-based fee schedule.

For this study, we focus on the reliability and validity of the average values for each vignette and procedure code. "Average" means the geometric mean.[10] These average values for relative work would be used in a relative value scale. Variation in individual physicians' estimates of relative work reflect several factors that are "averaged out" of the mean values. These factors include random measurement variation or "error" made by surveyed physicians when estimating the work of the vignette, variation in interpretation of the vignette, and differences in the actual work different physicians would undertake for the patient or task specified in the vignette.[11]

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[10] In this chapter, "average" will usually mean the geometric mean rather than the arithmetic mean. The geometric mean is calculated by computing the arithmetic average of the log of the responses, and then taking the antilog of this number. For nonsymmetrical distributions such as physicians' estimates of time and relative work, the geometric mean is a better measure of the central tendency or "average" than the arithmetic mean.

Statistical tests of the reliability of the estimates of average work included the standard error of the mean (SEM) for each vignette and measures of effective reliability (group intraclass correlation).[12] In addition, the investigators compared the results of the pilot survey and of Phase I for four specialties, another indication of reliability.

Validity is difficult to assess for the results of a study for which there are few independent sources of information on what is "true" or "right". The estimates for average time can be compared to actual time for surgical operations or office visits, but there is no standard or "truth" against which to compare estimates of work other than the opinions of physicians who do the work or, perhaps, others who observe them.[13] Consequently, tests of validity for relative work are largely limited to asking physicians whether the estimates "look right" or "look reasonable"--that is, whether they have face validity--and whether the concept or model of work used in the study appears to capture the essence of work (construct validity). This method of testing validity applies not only to the methods and results of this study, but also to any study designed to measure physician work.

If one accepts that physicians are good judges of the work required for their services, the very design of the study suggests that the results would be valid: the study relies on the judgments of physicians themselves about the time and effort or work required for their services. If it is accepted that physicians "know" how much work is required to provide their services, then a method that accurately reflects physicians' judgments would yield valid estimates of work. Of course, these estimates should be compared with external measures of time and work wherever possible.

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[11] Reliability of estimates of individual physicians are interesting in themselves and are important for determining how large a sample is needed for reliability of group (average) values, but are not directly relevant to setting relative values. Because these measures do not assess the reliability of the group or mean ratings, they are discussed only in the appendix.

[12] The term "error" as used in "standard error of the mean" (the SEM) refers to random statistical variation rather than to mistakes. This kind of "error" or variation can be averaged out statistically by using mean values as is done in this study. The "standard error" of a mean value gives an indication of the variability or reproducibility of the mean as an estimate of the "true" mean value. It is analogous to a standard deviation, but it applies to a population of means calculated if the experiment or study were done many times.

[13] Some might argue that physicians' charges are a measure of work and therefore comparison of relative work values with current charges is a test of validity. The Commission has concluded that current charges do not reliably and accurately reflect the costs of physician services, including work, so it rejects this comparison as a test of validity. Charges do correlate with relative work (Kelly et al., 1988; Etheredge and Dobson, 1988) and may more closely reflect relative work within small families, allowing these charges to be used to extrapolate from the estimated values within small groups of closely related services.

The remainder of this section describes each of the steps listed above in the Hsiao study's method for estimating relative work. It also summarizes the Commission's evaluation of the method and its use in Phase I, and makes suggestions for improvement.

The Model for Work. The first step is to specify a model or conceptualization of physician work.[14] The investigators compartmentalized the work for a procedure into the intraservice work, preservice work, and postservice work. Intraservice work is the core of each service, corresponding to the events in the operating room for a surgical procedure, and to the face-to-face encounter with the patient for an evaluation and management service. Preservice and postservice work are the tasks that occur before or after the intraservice. For example, pre- and postservice work for a surgical procedure are the pre- and postoperative care for a surgical procedure, including postoperative visits in the intensive care unit and hospital. Components of pre- and postservice work for a visit or consult include reviewing past medical records and examining results of laboratory tests after an office visit.

Dividing work into these three parts for separate estimation, as suggested by the physicians of the Technical Consulting Groups for the study, appears to be workable for most services, though total work for pathology services was estimated directly rather than reconstituted from intraservice work and pre- and postservice work.[15] As discussed below, it was possible to develop reliable and valid estimates for intraservice work for most services. But this compartmentalization of work will be fully validated only when reliable and valid estimates of pre- and postservice work (and therefore of total work) have been developed. The investigators have not yet satisfactorily estimated pre- and postservice work.

In the model of work used in this study, work consists of several components or dimensions: time, physical effort and skill, mental effort and judgment, and stress from iatrogenic risk (Hsiao, Yntema, et al., 1988). This model was developed using psychometric techniques to examine the concept of work held by a sample of physicians, and refined through analysis of pilot study results. The model was then tested and refined through a pilot survey of four specialties: general surgery, internal medicine, radiology, and anesthesiology. According to the investigators and testimony of others to the Commission, the physicians on the Technical Consulting Groups generally confirmed the validity or "reasonableness" of this model of work.

The investigators analyzed the internal consistency of the model by testing whether the estimates of intraservice work could be predicted from the estimates of its components or dimensions. As indicated in Appendix A, variation in intraservice work was quite accurately explained by variation in time, physical effort and skill, mental effort and judgment, and stress. This suggests not only that physicians' responses were internally consistent, but also that there were no important dimensions of intraservice work left out of the model, allowing the analysis to proceed using only the aggregate estimates of work rather than the estimates of its components. Finally, the demonstration of internal consistency adds to the evidence for construct validity of the model of work.

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[14] The development of the model for work is described in much greater detail in Appendix A, and in Hsiao, Yntema, et al., 1988.

[15] The pathologists on the Technical Consulting Groups argued that the work embodied in their services is more easily conceived as a whole, and surveyed physicians found it difficult to estimate pre-, intra-, and postservice work separately.

In summary, the model or conceptualization of work appears valid. The compartmentalization into pre-, intra-, and postservice work also appears valid but cannot be fully evaluated until estimates of pre- and postservice work have been completed.

Development of Vignettes

The Hsiao study was designed to develop estimates of relative work for all physician services. The HCFA Common Procedure Coding System (HCPCS), based largely on the Common Procedural Terminology (CPT) coding system, describes all physician services and procedures, and physicians could be asked to estimate work for each of these codes. However, each code encompasses similar services with a range of physician work, and different physicians could interpret a code differently.[16] The investigators chose to ask physicians to estimate work for a vignette describing a standardized patient problem or physician service to be performed, rather than for the code itself. Each vignette was intended to correspond to the "typical" or average service for a CPT code to which it would later be matched; for some vignettes, a different code was ultimately selected as a better match after the estimates were completed. The values for relative work for this set of vignettes would later be used to extrapolate the results to all physician services for the specialty.

Vignettes were developed for a representative sample of about 20-25 services for each physician specialty studied. Vignettes were developed to represent services and procedures in each of four types of activities: (1) evaluation and management services (visits and consultations), (2) invasive procedures, (3) laboratory procedures, and (4) imaging and pattern recognition. Each vignette was intended to represent the average service for a corresponding procedure code.

For the most part, physicians were able to give reliable estimates for the vignettes used (the statistical variation was relatively small, as discussed below). However, some vignettes for several specialties were less well defined, leading to uncertainty in the interpretation by responding physicians, and therefore higher variability in the estimates of work for these vignettes.

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[16] For example, the code for a cholecystectomy includes simpler and more complex cases, and physicians may differ in the complexity of case they consider to be average or representative for the code. Similarly, an extended office visit might average 30 minutes in the opinion of one physician, and 60 minutes for another. Using vignettes allowed standardization of the case and tasks required. Since surveyed physicians did not know which code would be assigned to each vignette, their estimates of relative work would be less likely to be influenced by their knowledge of current charges for a code.

The sample of vignettes for each specialty was intended to encompass the full range of complexity of work for the specialty, and to include all the types of services and procedures in the specialty. Since the set of vignettes should also provide "benchmarks" for extrapolation to all services in the specialty, it should include at least one service from each "family"[17] of procedures (see below). For some specialties (for example, orthopedic surgery, which alone has more than 1000 of the 7000 CPT codes), the set of 20-25 vignettes was too small to include a service from each type or family of procedures in the specialty. As a consequence, there were no estimated values to extrapolate to some of the specialty's services, as discussed below. This number of vignettes also could not provide "coverage" for all the services in the subspecialties of large specialties like orthopedic surgery.

According to testimony to the Commission, the vignettes of several specialties did not adequately cover the range of difficulty or intensity of the specialty's procedures.

Though all vignettes were developed to correspond to a particular code, some vignettes did not correspond well to any single procedure code for a specialty, making it difficult to assign a code to the vignette. Finally, some vignettes may not represent the average work for the procedure code to which they correspond, potentially leading to relative work values that are too high or too low for the code.

Because the vignettes were intended to represent the whole range of persons in the population rather than Medicare beneficiaries alone, fewer than one-half of the vignettes specified patient age, and only thirty (about eight percent) specified a patient in the Medicare age bracket. Further, since each vignette was designed to represent the average patient for the corresponding procedure code, no "frail" elderly patients were represented. While this approach will yield a relative value scale that is generally accurate for physician services to the general population and to most Medicare beneficiaries, more research is required to estimate with confidence the relative work involved in caring for complicated, frail elderly patients.

For Phase II of the study, all vignettes should be defined clearly, and the vignettes developed for each specialty should cover the whole range of services needed for extrapolation, and they should cover the services for all significant subspecialties and their entire range of difficulty. Each vignette should be specified so that it can be linked to a single procedure code, and it should represent the average work for that code.[18]

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[17] A family is a small group of closely related procedures, such as coronary artery bypass surgery for different numbers of arteries.

[18] A different approach will be used for evaluation and management services, as explained in Chapter 2.

A fraction of the vignettes should be designed to represent the frail elderly, to provide a preliminary indication of differences in the work required for services to these Medicare beneficiaries. But Phase II of this study will not be able to fully determine the work required to care for the frail elderly. A larger, more extensive study of the care of frail elderly would be required. In the coming year, the Commission will determine how such a study should be designed and conducted. Both Phase II and the Commission's visit survey (see Chapter 3) will provide preliminary information useful in designing such a study.

In some cases, surveys of additional vignettes will be needed for Phase I specialties to adequately cover the breadth of the specialty for extrapolation.[19] When vignettes are matched to CPT codes, individual relative values may have to be modified for codes for which the associated vignette does not represent average work.

The Physician Survey

The survey was designed to select a representative national sample of about 185 practicing physicians in each specialty, of which about 100 were to be surveyed for estimates of the time, and of the work and the elements of intensity of work for the services in their specialty relative to a standard service. Physicians thought unlikely to provide good estimates were to be eliminated from the sample prior to the survey. Physicians eliminated included those practicing less than twenty hours per week, those still in residency training, those over 65 years of age, and those without a current address in the Physician Masterfile of the American Medical Association. The physicians were selected randomly within regional strata to achieve a representative sample, except that board certified physicians were slightly oversampled.

While it is desirable to limit the survey to physicians in active practice, physicians over the age of 65 were excluded regardless of their other characteristics. Not only might survey responses of physicians over 65 who would otherwise have qualified for the survey have differed from those of younger physicians, it is clearly inappropriate to exclude these physicians simply on the basis of their age.[20] The investigators have announced that for Phase II of the study, physicians over 65 who meet the other criteria for eligibility will be included in the study.

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[19] It appears that Phase II will survey additional vignettes for several specialties from Phase I, including orthopedic surgery, to provide better coverage of the range of services provided by physicians in the specialty.

[20] Older physicians might more frequently care for older patients, and so might give higher estimates for work because more is required to care for these patients. However, it is unlikely that their exclusion had a significant effect on the average estimates for *relative* work. Fewer than ten percent of practicing physicians are over 65 years of age, and some of these would have been excluded because they are not in active practice. And to affect the estimates of relative work, any systematic factors (e.g., spending longer with patients) would have to affect the estimates for some services differently from others. Nevertheless, without comparable survey data from physicians over and under age 65, we cannot be certain that there would be no difference. Inclusion of physicians over 65 in Phase II--which the investigators will do--will allow the investigators to determine whether the responses of physicians over 65 differ from those of other physicians.

Ideally, one would like all eligible physicians who are randomly selected for a survey to participate so that the results will be representative of all physicians eligible for the survey. The fraction of physicians who did not respond to the survey--either because they refused or the survey was not completed--was typical for a survey of this type, but it was large enough to raise the possibility of nonrespondent bias. It is possible that physicians who did not respond would have given systematically different answers in the survey from those who participated.

Several possible differences between respondents and nonrespondents were investigated (see Appendix A). Though these analyses did not suggest significant nonrespondent bias, the investigators did not examine several important potential sources of bias, such as differences between respondents and nonrespondents in the number of hours worked per week. Where possible, additional studies should be done of nonrespondents from Phase I as well as from Phase II to examine the possibility of bias. For example, characteristics from the AMA Masterfile or the Area Resource File could be used to compare respondents to nonrespondents for a number of demographic and practice characteristics.[21] Further, a sample of nonrespondents could be selected for additional study, perhaps including an interview exploring why they did not participate in the study.

Each physician was asked to estimate time and work for each service. Time was estimated in minutes, but there are no absolute units for physician work. Magnitude estimation--a technique developed for estimating subjective phenomena like the perceived intensity of light or sound--was used to estimate the relative work for each service. Each physician surveyed was asked to rate the work and each of its dimensions relative to a standard for each vignette in his or her specialty. All physicians were asked to provide estimates of intraservice time and intraservice work and the elements of intensity for all services, but only a fraction were asked to estimate pre- and postservice time for most vignettes. The following discussion applies to intraservice estimates; pre- and postservice time and work are considered separately below.

Physicians were instructed to provide estimates only for services when they were "comfortable" doing so. The intent was that each physician give estimates only for services with which he or she was familiar, since estimates for services that a physician does not routinely provide are likely to be inaccurate.

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[21] For example, it has been suggested that nonrespondents might be busier than respondents, and that rural physicians might be less willing to respond because they are busier. In Phase II, data could be collected on the hours of work per week (a measure of how busy a physician is) and on location of practice.

It was not possible to determine whether all physicians were "qualified to rate" all the services for which they gave responses. For example, physicians were told to estimate relative work only for services they felt comfortable to rate, but the instructions were not explicit enough to know whether any physicians rated services that they rarely or never perform. For Phase II of the study, the investigators should establish criteria for "qualified to rate" and make those criteria clear to surveyed physicians. It would also be useful to collect information on physician characteristics that are thought to predict whether a physician would be qualified to rate and to explore whether these characteristics are associated with any differences in physicians' estimates of work.[22]

Finally, the instructions should be more specific about what is to be included in the service for which work is to be estimated. For example, it should be clear that the intraservice work for an office visit or procedure includes only the physician's own work and not that of others who assist in the service.

Before the data were used to construct scales of relative work, about three percent of responses were deleted as "outliers" in two steps. Fewer than one percent of the responses to the survey were eliminated because they were more than three standard deviations from the geometric mean, and an additional two percent of responses were dropped for 48 physicians who provided valid responses to less than half of the vignettes surveyed.[23] Though both steps are reasonable for trimming potential outliers from the survey, additional information on the physicians whose responses were dropped would allow better determination of the possibility that these physicians differed systematically from the rest of the respondents.

Means and standard errors (SEMs) were compared for the trimmed and untrimmed data. As expected, the SEMs were slightly smaller for those vignettes for which some responses were removed; the differences in mean values were small. This suggests that trimming did not affect the results of the study, and that untrimmed data could have been employed for the estimates.

Developing a Scale of Intraservice Work for Each Specialty

The average of the responses for each vignette relative to the standard was calculated to generate a scale of relative intraservice work for each specialty. Physicians were able to provide reliable estimates of intraservice time, intraservice work, and elements of intensity (physical effort and skill, mental effort and judgment, and stress) for most of the vignettes. However, there are a number of specific problems with the results for some specialties in Phase I.

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[22] For example, data on the frequency with which a physician performs a procedure could be collected for a selected group of services and a relationship sought between estimates of work and frequency. This could help determine whether the estimates in Phase I of the study--when the instructions to physicians were not as clear--were likely to have been affected by ratings from physicians who were not familiar with a service or procedure.

[23] A method called expectation-maximization was used to impute values for those missing (about two to five percent of the values for most of the services).

Reliability. The study provided three pieces of evidence about reliability of the estimates of the geometric means used to construct a relative value scale.[24] Two statistical tests of the reliability of these estimates were presented, the SEM for each vignette and the effective reliability of the estimates within each specialty. Also, the results of the pilot survey were compared to the results of Phase I for four specialties.

The average SEM (as a percent of the geometric mean) was about 7 percent, though 49 vignettes (about one in seven) had SEMs greater than 10 percent and one greater than 15 percent. The estimates for several specialties had generally larger standard SEMs, implying greater variability in the estimates for these services. For example, analysis by Etheredge and Dobson (1988) showed that nine of the vignettes for general surgery and twelve for orthopedic surgery had SEMs of more than ten percent. A SEM of 7 percent would imply that one could be 95 percent confident that the true average value would lie within 14 percent of the estimated average value (Roscoe, 1969).

A measure of "effective reliability" of the mean ratings can be calculated from the intraclass correlations of all the physicians in each specialty by the Spearman-Brown formula (Rosenthal, 1987).[25] This measure indicates the level of correlation of the values for average work in each specialty if the survey were performed many times. The level of "effective reliability" indicates whether the specialty's scale of relative work would come out about the same if the study were done a number of times. These "group correlation coefficients" were all greater than 0.98, indicating that each specialty's relative mean ratings are very reliable.

Time and work were estimated for 52 vignettes in four specialties in both the pilot study and Phase I. Though the methods used differed somewhat, the estimates from the two studies can be compared. Comparison of the results showed that for most of the 52 vignettes, the two average values differed by less than ten percent, with few greater than fifteen percent.

These tests imply that the results for average time and work are generally reliable, with most values lying within 14 percent of the true value. However, because there is always statistical variation in the estimates, individual values could be farther from a "true" mean value. For example, for those vignettes with a SEM of 7 percent or less, about one in twenty mean values would be expected to differ by more than 14 percent from the "true" value.[26]

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[24] The following discussion applies only to the estimates of intraservice time and work. The values for pre- and postservice work were essentially imputed rather than estimated; they are discussed later.

[25] This measure is also called the group intraclass correlation.

Validity. It is difficult to assess the validity of estimates of subjective variables like relative work other than to assess face validity--to ask physicians whether the results "look reasonable." For time, comparison to actual times is possible.

The members of the Technical Consulting Groups are reported by Hsiao et al. to have found the results for estimated relative intraservice work and intraservice time to be generally "reasonable", and testimony to the Commission confirmed that view for the most part, implying substantial face validity. In some cases, however, the accuracy of individual values were identified as questionable by specialty groups in testimony to the Commission.

Estimates of average intraservice time for eight surgical procedures were compared with mean operating room time from a 1986 survey of eight hospitals. The average difference was 12 percent, with five of the eight less than 10 percent. But two differed by more than 15 percent.

While the estimates are generally reliable and valid, there may be inaccurate values for particular vignettes or specialties. First, the SEMs for some vignettes were much larger than others, implying a lower level of confidence for the values for these vignettes. As noted above, the SEMs for about one in seven vignettes were more than ten percent of the corresponding mean. Second, some vignettes had far fewer responses than others; fourteen vignettes in the study had fewer than fifty valid responses. The estimates for most of these vignettes have high SEMs and so are less reliable. They also have a greater possibility for nonresponse bias. For example, the estimates for a vignette with only 30 valid responses are based on responses from only about one-sixth of those eligible to respond, and about one-third of those actually surveyed. For both Phase I and Phase II of the study, vignettes with low numbers of responses or high SEMs should be examined to see if they are likely to be subject to nonresponse bias or appear to be inaccurate.

There are two potential problems with the standard or reference service that may affect the results for particular specialties. First, magnitude estimation has been shown to give the most accurate results if the standard or reference service is in the midrange of the scale of values being estimated. A standard at either extreme of the scale can lead to biases in estimates at the other end of the scale (Stevens, 1975). For pathology, the standard was well below the midrange, raising the possibility that estimated values at the upper end of the scale may be less reliable or biased.[27] While the SEMs for pathology were not higher than the average for all specialties, suggesting reliability was not compromised, bias cannot easily be assessed because there is no standard against which the values can be compared.

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[26] As will become apparent from the description of the study, statistical variation and several other factors can cause a few of the values within a specialty to vary substantially from the true value--for example, more than 20 percent--even when the specialty's relative values are generally reliable and valid. As noted below, the Commission plans to conduct a consensus process through which practicing physicians will identify and correct such deviations in individual values.

Second, representatives of otolaryngology assert that the vignette for their standard service could be interpreted in several different ways by different physicians, providing a variable work standard for estimating the relative magnitude of work for all services in the specialty and therefore lower reliability for the estimates for relative work. However, the SEMs for otolaryngology are comparable to those for other specialties, suggesting that reliability was not substantially reduced.

The possibility of bias should be explored in those specialties for which the standard may have been placed below the midrange of the scale, perhaps by surveying additional vignettes using a different standard. Additional work may then be needed to develop unbiased estimates.

In summary, the estimates of intraservice time and work are generally sound, but minor methodological problems may have affected the estimates for several specialties. The investigators are now conferring with representatives of several specialties to determine whether additional work is required to improve the estimates for relative work. Hsiao and his colleagues have agreed to additional work for orthopedics, internal medicine, and general surgery to expand the range of services estimated for these broad specialties. They have also agreed to restudy selected aspects of psychiatry and dermatology, and are considering partial restudy for cardiothoracic surgery, pathology, and ophthalmology (Hsiao, 1989).

Once specific problems with the estimates for individual specialties are corrected, the values for intraservice work could form the basis for accurate relative values for work in a relative value scale for Medicare.

Preservice and Postservice Time and Work

In contrast to the success of estimating relative intraservice time and work, there were substantial problems with estimating pre-and postservice time and work. Because the estimates of pre- and postservice work are of uncertain accuracy, the estimates of total work--the sum of preservice, intraservice, and postservice work--suffer from the same uncertainty.

The investigators did not measure pre- or postservice work directly. Rather, pre- and postservice work were imputed from the estimates of intraservice time and work. To do this, the investigators examined relationships between pre- and postservice time and intraservice time and work for a fraction of the services in the study, and used a number of assumptions to assign values for pre- and post-service work to all services in the study (Appendix A). In addition, apparent anomalies in the resulting imputed values were changed based on the judgment of the investigators.

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[27] Several other specialties testified that their standards were also outside the midrange. Unlike pathology, it is not clear whether their standards were in fact below the midrange. The ambiguity is in part due to different ways one might define a midrange.

The methodology and results for pre- and postservice work are clearly inadequate. Because the methodology moves from limited data on pre- and postservice time through a series of assumptions and calculations to produce values for pre- and postservice work, it is difficult, if not impossible, to evaluate it. Though the results are said by the investigators to be judged generally reasonable by members of the Technical Consulting Groups, virtually every physician group testifying to the Commission questioned the results for pre- and postservice work and found the methodology employed difficult to understand and not credible. Most of these groups, by contrast, judged the basic methodology for estimation of intraservice work to be sound.

If reliable and valid estimates for total work are to be produced for use in a relative value scale, a different methodology must be developed for pre- and postservice work, or, alternatively, for total work directly.[28] The methodology must produce actual estimates for pre- and postservice work rather than imputed values, at least for most of the core services in the study.[29] Values of pre- and postservice work must be developed for the services in Phase I as well as those in Phase II.

Cross-linking All Specialties into a Common Scale

Each of the specialty scales allows comparison of intraservice work only within that specialty. The cross-linking step generates a single scale of relative intraservice work that includes the services and procedures of all specialties and allows them to be compared.

Cross-linking was performed with intraservice work values for two reasons. First, according to the investigators, physicians can more easily conceptualize intraservice work and determine when it is comparable among different services. Second, the estimates for intraservice work were more accurate than those for total work. In fact, the uncertain accuracy of the imputed values for pre- and postservice work suggests that crosslinking should not use the current values for total work.[30]

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[28] In either case, estimates for intraservice work would be needed for crosslinking and for building the surgical global service. In Phase I, intraservice work was used for pathology links though total work was used in the relative scale.

[29] As explained in Chapter 3, surgical global service packages can be constructed from the intraservice work of the surgical procedure and from total work of the evaluation and management services included in the global service package. Therefore, though total work values are required for construction of relative values for evaluation and management services and for nonsurgical technical procedures, it may not be necessary to develop estimates for pre- and postservice work for surgical services.

To merge the relative work scales for all the individual specialties into a single common scale, the investigators, with the help of the cross-specialty panel, identified vignettes for which intraservice work was the same or equivalent in two or more specialties. The specialty scales were aligned through a least-squares technique that minimized the differences between the work values on the resulting common scale for these pairs of vignettes. About 80 linked pairs involving more than 130 different services were used.

The crosslinking step generated a common scale of intraservice work with introduction of little additional statistical variation, and the values of relative work on the common scale were similar within pairs of links.[31] In particular, the difference in work between the two services in the links averaged 13 percent on the common scale. More than half of the pairs of linked services were placed within 10 percent of each other, and 72 of the 82 links differed by less than 20 percent. But five pairs of links, including three of the 11 links for urology, had differences of over 25 percent (Etheredge and Dobson, 1988).[32]

Though the linkage methodology is sound and its application generally successful, two kinds of potential problems with linkages for particular specialties were identified. First, the pairs in several individual links were questioned by the specialties involved on the grounds either that the linked services were simply neither the same nor equivalent on the face of it, or that there were substantial differences in the relative values for the pair on the common scale. For these links, the investigators should examine the match more closely using additional physicians, perhaps including those outside fee for service whose judgments might be less likely to be influenced by current charge relationships.

Second, specialties like pathology, anesthesiology, and dermatology were difficult to link because few of the services they provide are like those provided by other physicians, making it difficult to identify with confidence pairs of services that are the same or equivalent. Further, these specialties questioned the validity of some of their links. For these specialties, the investigators should carefully reevaluate the questioned links used in Phase I, and search for additional links. Adding more specialties in Phase II provides opportunities for additional links between Phase I and Phase II specialties.

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[30] There is an implicit assumption that the ratio of total work to intraservice work for a pair of linked services would be the same for the two specialties.

[31] When pairs of services were selected for use as crosslinks, it was required that intraservice time for the two services in each pair differ by less than 20 percent (and intraservice time was not affected by the crosslinking process). However, it was not possible to compare intraservice work for each pair of linked services prior to crosslinking because the two services were on different scales with different reference procedures. After all services are placed on the common scale through crosslinking, the values for intraservice work for the services in each pair could be compared. Only then was it possible to see whether the pairs of services were assigned similar values for intraservice work.

[32] In some but not all cases, the pairs of services in a link would correspond to the same CPT code. In those cases, the differences on the common scale between linked values were later reconciled, resulting in a single value for intraservice work for each procedure code.

The completion of this step produces a multispecialty scale of intraservice work. When estimates of pre- and postservice work are added to the values for intraservice work, the common scale of relative total work is complete.

Assigning Codes to Vignettes

To assign relative work values to service and procedure codes, the vignettes must be matched with codes in CPT.[33] While this was generally successful for surgical and technical procedures, it proved difficult to do for evaluation and management services because of deficiencies in the coding system for these services. The definitions of evaluation and management services in CPT are not clear, so that different physicians use them differently, and the physicians and investigators in Phase I of the study could not confidently assign vignettes to codes (see Chapter 3 for a discussion of the problems with coding for evaluation and management services).

As discussed in Chapter 3, the Commission has begun developing modifications of the CPT evaluation and management codes. Values for relative work for the new codes will be based on the data on work and time for evaluation and management vignettes from the Hsiao study and additional data from the Commission's visit survey. Hsiao and his colleagues are also exploring the relationship between time and work for evaluation and management services with the aim of developing new codes for these services.

As mentioned above, some vignettes do not represent the average work for the code to which they are matched. For these vignettes, the value for total work should be adjusted using consensus techniques to more accurately represent the average.

Extrapolating to All Physician Services

The common scale of relative total work includes only those services--about 20-25 per specialty--for which relative work was estimated. Using existing relative charges within small families[34] of services and procedures, the relative total work values for the sample of 407 estimated vignettes are extrapolated to all 6000 services in the surveyed specialties to generate a common scale of relative work for those specialties.[35]

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[33] The vignettes developed earlier were intended to match to specific codes, but in some cases different matches were made at this later step.

[34] A family is a small group of closely related procedures, such as coronary artery bypass surgery for different numbers of arteries. A larger family, such as all open heart surgery procedures, would be more heterogeneous.

Within each family, a service for which relative work was estimated becomes a "benchmark" for the family. The relative work value for each member of the family is calculated from the average charge for that service by assuming that the ratio of the average charge to relative work for each service in the family is equal to the ratio for the benchmark service. Average charges were computed from Medicare data (Appendix A).

This approach requires an assumption that relative charges within small families of services are parallel to (correlate highly with) relative work.[36] The investigators demonstrated that relative charges and estimated work are in fact more highly correlated within smaller, more homogeneous groups of services, such as all evaluation and management services, than for all services taken together.[37] Further, the correlation between relative work and charges increases as the groups are further subdivided. In other words, the smaller and more homogeneous the group of services studied, the higher the correlation between charges and estimated relative work. This suggests that the correlation would be greatest for the smallest groups (the "families" that would be used for extrapolation), and tends to support the assumption that relative charges could be used to extrapolate values for relative work within small families.

A few families contained more than one estimated value, allowing comparison of estimated work to charges within these families. When this was done for five families, it was found that estimated work and charges "tracked" closely for some and not for others. Where they were not closely correlated, it was not clear whether inaccurate estimated values, anomalous charge data, the definition of the family, or the method itself accounted for the lack of correspondence.

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[35] One might expect that extrapolation would be based on relative values that include practice costs as well as total work. However, because the ratio of work to relative value (i.e., work to work plus practice cost) would be the same for all services within a small family of services, the two approaches would yield the same final scale.

[36] It may seem contradictory to use current charge relationships in the construction of a scale of relative work, particularly if charges are distorted by market imperfections. The argument is that these factors have equally affected the charges for the closely-related services in small families, so have not distorted relationships among them.

[37] There is a relatively "high" correlation between current charges and the estimates for relative work (Kelly et al., 1988). Though this confirms that the two are related, it does not imply that the relative work values are essentially the same as the charges. In fact, they are not (Etheredge and Dobson, 1988). Charges for groups of related services were systematically different from the estimated work values (Kelly et al., 1988). More generally, "high" correlation coefficients for two variables, even those well over 0.9, do not insure that individual values of one variable are close to individual values of another.

Though this method would appear to work in principle, there were several problems with its application in Phase I. In fact, many specialties testified to the Commission that a substantial fraction of the extrapolated values for their specialties were not credible. These inaccurate extrapolated values could have resulted from deficiencies in the methodology, or in its application.

Accurate extrapolation proved impossible for evaluation and management services because of the same deficiencies in the coding system for these services that prevent assignment of accurate relative values as discussed earlier. As described in Chapter 3, the Commission is developing an alternative method to coding and assigning relative values for these services. This approach will enable the assignment of values to all evaluation and management codes without the need to extrapolate from current charges.

Extrapolation requires accurate relative work values for the surveyed services used as benchmarks, accurate data on relative charges, and well-defined families of services and procedures within which existing relative charge relationships can be expected to parallel relative work values. There were problems in Phase I of the study with all three of these elements:

- Because pre- and post-service work values were of uncertain accuracy, the relative total work values used for extrapolation may also be inaccurate.

- Because too few "benchmark" services were estimated to cover the breadth of work in some specialties, some of the families used for extrapolation were too large and heterogeneous. When services within large families are not closely related to each other, the charge relationships within such families may not correspond to relative work.

- The Medicare charge data used for extrapolation were reported to have many inaccurate values (Kelly et al, 1988) and may not have been well edited or "cleaned."[38]

These three shortcomings in the application of the extrapolation methodology in Phase I could have resulted in inaccurate extrapolated values, even if the method itself is sound. Therefore, we do not know whether the method would yield accurate extrapolated values if each of these shortcomings were remedied. In any case, it is clear that each of these problems must be corrected to produce accurate extrapolated values. Once these problems are corrected, new extrapolations for specialties from Phase I must be made, and the methodology itself evaluated.

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[38] Chapter 9 of the report discusses problems with existing charge data and the editing steps required to correct them.

Assuming that the validity of the methodology and the general accuracy of future extrapolated values are demonstrated, there will still be substantial variation from the "true" values for a small number of individual estimates. These variations could arise if there were anomalies in the charge data used, or statistical variability in estimated relative values used for extrapolation. If the methodology proves to be generally sound, the Commission will conduct a consensus process to identify and correct inaccurate individual extrapolated values.[39]

Summary

The Commission has concluded that the basic approach and methodology of the Hsiao study are sound, and can produce reliable and valid results for intra time and intra work. However, the methodology must be improved in several areas:

- A method is needed to obtain reliable and valid estimates for pre- and postservice work for evaluation and management services and for non-surgical technical procedures, or, alternatively, direct estimates of total work. Hsiao and his colleagues are testing alternative methods to do this as an early task in Phase II of the study.

- A coding system for evaluation and management services must be developed that allows accurate assignment of relative values. The Commission is developing modifications for these codes by incorporating time into the definitions, and a method for assigning relative values to them using the observed relationships between work and time for these services (Chapter 3).

- Clear, standardized definitions of surgical global services are required to assign accurate relative values to these services. The Commission is developing standardized global service definitions, and it describes a method for assigning relative values to them using values for intraservice work of surgical procedures and total work values for the evaluation and management services included in the package (Chapter 4).

- The method for extrapolating from estimated services and procedures to all physician services must be improved, including better definition of families of services, better data for average charges, and estimation of enough vignettes in each specialty to allow extrapolation to all services with confidence. The Commission or the Health Care Financing Administration could provide more recent and higher quality data on current physician charges to extrapolate within families.

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[39] For example, even the best available charge data is likely to contain a few inaccurate values. These anomalous charge values would cause inaccurate extrapolated values. Using carefully structured consensus processes, one could then either "correct" the charge data prior to using it for extrapolation, or correct the extrapolated values themselves.

In addition, there are a number of specific problems with the results of Phase I that need to be corrected once the methodology is refined. The most important are the following:

- Additional linking services are needed for the "insular" specialties, which have few links, particularly where the quality of those links has been questioned. This could be done by identifying new links, including some between Phase I and Phase II specialties, and devising methods to determine the quality of links with greater confidence.
- Where actual or probable inaccurate estimates have been identified for specific specialties or services due to particular problems in the way the method was used, the investigators should evaluate these problems and, where necessary, correct them. Examples of particular problems include improper location of the standard, and vignettes that are not clearly defined or do not adequately span the breadth of a specialty's work. In some cases, little additional work is likely to be needed, but others may require surveying of substantial numbers of additional or revised vignettes.

Hsiao and his colleagues, the Health Care Financing Administration, and the Commission itself have begun work on each of these problems in the methodology and the Phase I results. Hsiao and colleagues have agreed to additional study of three large specialties from Phase I: general surgery, internal medicine, and orthopedic surgery. They have also agreed to restudy psychiatry and dermatology, and are considering additional work for cardiothoracic surgery, pathology, and ophthalmology.

The Commission believes that the methodology used in Phase I can be improved and that reliable and valid estimates for relative work for all physician services can be developed within the next 12-18 months, in time for incorporation into a resource-based fee schedule to be implemented in 1992. Preliminary estimates available late in 1989 could be used to construct an interim fee schedule for use in transition for 1990 and 1991.

PRELIMINARY RESULTS OF THE HSIAO STUDY

Under a fee schedule based primarily on resource costs, the fees paid for services would differ from current charges. Though each fee in such a cost-based fee schedule would depend on both relative work and practice costs, most of the characteristics of the fee schedule can be predicted from a knowledge of the relative work upon which it would be based. In Chapter 9, we present a preliminary estimate of a resource cost-based fee schedule and simulate its impact on physicians' revenues and beneficiaries' costs. In this section, we describe the scale of relative work upon which that fee schedule is based and explain how the effects of implementing such a fee schedule can be anticipated.

The results for eighteen specialties in Phase I of the study give only a preliminary indication of the relative values for work that will result from the completed study. Limitations of the methodology used in Phase I imply that the preliminary results for many individual services, particularly the extrapolated values, may be inaccurate. But most preliminary values for the multispecialty scale of intraservice work are accurate, and general relationships in the final scale among the relative values of intraservice work for groups or types of services--such as evaluation and management services, invasive surgical procedures, and imaging services--will be similar to those of Phase I. These values can be used to predict the shape and effects of a fee schedule based on relative work.[40]

There is a wide range--more than thirty-fold--in the values for intraservice work, with invasive surgical procedures having the highest values and evaluation and management services generally the lowest. More interesting are the values for intraservice work per unit time, because they reflect the intensity of work for different services and therefore predict the compensation or net revenue per hour that a physician would receive when providing them. Here are some of the key patterns that emerge for intraservice work:

- Intraservice work per unit time differed substantially among physician services, with the highest values for long and complex surgical procedures like coronary artery bypass surgery.
- Values of intraservice work per time--the intensity of the work--varied about four-fold among evaluation and management services, and were similar among specialties. Values were generally higher for consultations and hospital visits than for office visits, reflecting physicians' different ratings for intensity of the service.[41]
- The range of values of intraservice work per time was much greater for invasive procedures, the highest more than ten times the lowest. This reflects the greater range of intensity of these procedures.
- Work per unit time (work/time) is generally higher for invasive procedures than for other services. For example, the average

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[40] This discussion draws on Hsiao et al., 1988 (the final report), and three articles in the Journal of the American Medical Association by Braun, Hsiao, et al. (1988), Hsiao, Couch, et al. (1988), and Hsiao, Braun, et al. (1988).

[41] Chapter 3 examines the factors that predict intensity (work/time) of evaluation and management services.

> work/time for invasive procedures is more than twice the average for evaluation and management services, and almost twice the average for imaging procedures. The highest work/time for an invasive procedure is three times the highest for any evaluation and management service and nearly three times the highest imaging procedure.[42]

Several conclusions can be drawn from these preliminary results. First, the values for work were not primarily a reflection of time, as some had expected. Rather, work per unit time varied more than ten-fold among services. Even among evaluation and management services, work/time varied four-fold. Second, invasive procedures received substantially higher ratings for work per unit time than other services, reflecting their greater estimated intensity.

These results can be used to predict the effects on physicians' net revenues under a cost-based fee schedule. Since compensation (net of overhead) per hour will reflect work per unit time, these results imply that compensation per hour under a cost-based fee schedule will vary more than ten-fold among different services and procedures. Similarly, compensation per hour will be substantially greater--twice, on average--for most invasive procedures than for other services.

To predict the effects of implementing a cost-based fee schedule on physicians' charges, one must compare these patterns of net compensation per unit time with those under the current system. The patterns are different, and the simulations in Chapter 9 reflect those differences. In particular, compensation per unit time for many invasive procedures, imaging and pattern recognition procedures, and laboratory procedures is higher under the present system than it would be under a cost-based fees schedule, and the converse is true for most evaluation and management services. Consequently, physician fees under a cost-based fee schedule would generally increase for evaluation and management services and decrease for most other services and procedures.

The impact on a particular physician or specialty is more difficult to predict, since it will depend on the "composition of practice" of the physician or the specialty. A physician whose practice is concentrated in invasive procedures is likely to experience a reduction in net revenue from Medicare, while a physician who provides mostly evaluation and management services could expect an increase. Of course, the physician who provided mostly invasive procedures would receive greater compensation per hour than the other physician, even under the cost-based fee schedule, reflecting the greater intensity (work/time) of invasive procedures.

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[42] These patterns hold within specialties as well as across the entire multispecialty scale of relative work. In other words, the relative intensity of evaluation and management services compared to invasive procedures is reflected in the estimates of surgical specialists as well as physicians who specialize largely in evaluation and management services.

Similarly, the typical physician in a specialty that provides many invasive procedures will receive greater compensation per time than in a specialty that provides mostly evaluation and management services, though the differences would be smaller under a cost-based fee schedule than under the present system. As the simulations in Chapter 9 demonstrate, however, the impact on practice revenue from implementing a cost-based fee schedule would vary widely within a specialty because some physicians in each specialty provide many invasive procedures while others do not. For example, the implications for a ophthalmologist who performs many cataract operations would be different from an ophthalmologist who spends most of his time providing office services.[43]

SPECIALTY DIFFERENTIALS

The Commission's 1988 Report to Congress explained why specialty differentials would seldom if ever be appropriate in a fee schedule based on resource costs (Physician Payment Review Commission, 1988). All physicians, regardless of specialty, should receive the same payment when they provide the same service. When two physicians provide substantially different services, differences in payment should reflect differences in the work (or other costs) required. If there are substantial differences in resource costs for similar services when provided by different specialists, these differences should be recognized through the coding system rather than through specialty differentials.[44]

The Commission concluded in its 1988 report that the coding system already recognizes most of these differences for surgical and technical procedures without the use of specialty differentials. However, the coding system now used for evaluation and management services uses specialty differentials in an attempt to account for differences in physician work for these services. The reform in coding for evaluation and management services proposed in Chapter 3 will make it possible to assign relative values that approximate physician work for these services regardless of the physician's specialty without the use of specialty differentials.

There may be services or procedures for which there are substantial and consistent differences in work when the service is provided by different specialists that are still not recognized by the coding system. The process of updating the fee schedule (Chapter 8) would identify any remaining differences and recommend changes in coding. In the longer term, there may also be a need for complexity and severity modifiers for some surgical services provided through global packages, analogous to complexity and severity modifiers now being developed for hospital DRGs.

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[43] Similarly, a gastroenterologist who provides mostly visits and consultations is likely to experience an increase in practice revenue, while a gastroenterologist who performs many endoscopic procedures is more likely to experience a decrease.

[44] This is now done for surgical and technical procedures by establishing different codes for similar but different services, as explained in the 1988 Report. In principle, differences in work for similar services could also be recognized through severity or complexity modifiers.

ANESTHESIOLOGY, RADIOLOGY, AND PATHOLOGY

Several specialties--radiology, anesthesiology, and pathology--are now or may in the near future be paid on the basis of separate specialty-specific fee schedules. In the Omnibus Budget Reconciliation Act of 1987 (OBRA 87) (P.L. 100-203), Congress mandated implementation of a relative value scale and fee schedule for services provided by radiologists, and establishment of a uniform Relative Value Guide for anesthesia services. It also called on the Secretary of Health and Human Services to develop a proposal for a fee schedule for pathology. The Commission intends that payment for all specialties, including these three, would be based on the Medicare Fee Schedule. However, the intra-specialty relative values implied by these fee schedules could be considered for use in the relative value scale.[45]

Services by radiologists are now paid on the basis of a fee schedule that was developed by the Health Care Financing Administration in consultation with the American College of Radiology. It is not clear whether the relative values in the new radiology fee schedule would be an appropriate alternative to the Hsiao study as a source of resource-based relative values for radiology services for all physicians. If upon evaluation they are found to reflect resource costs and represent an improvement over the intraspecialty relative values from the Hsiao study, the Commission could integrate them into the Medicare Fee Schedule using the linkages developed in the Hsiao study.

Payment for anesthesia services is now based on the Relative Value Guide (RVG) developed by the American Society of Anesthesiologists, with different conversion factors and geographic multipliers for different carriers.[46] Since the RVG is in principle resource-based--payment for each anesthesia service under the RVG is based on time, the difficulty of the operation, and patient condition--the Commission will consider it as an alternative to the Hsiao study as a method for setting resource-based relative values for anesthesia services.[47]

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[45] Each of these specialty-specific fee schedules can be thought of as composed of a relative value scale for the services of that specialty, and conversion factor, and a geographic multiplier. The Commission would consider using only the intra-specialty relative values in its RVS.

[46] The area-specific conversion factor used by each carrier for anesthesia services is in effect a combination of a national conversion factor and a geographic multiplier for that area, and logically equivalent to the national conversion factor and separate geographic multipliers used in the Medicare Fee Schedule.

[47] The area-specific conversion factors now used would be replaced by a conversion factor and geographic multipliers that would integrate the RVG into the rest of the Medicare Fee Schedule. These would be set so that payment for individual anesthesia services under the RVG would be comparable to the fees that would have resulted from the values developed in the Hsiao study.

The services of pathologists were included in Phase I of the Hsiao study, so that a charge-based fee schedule for pathology is not needed. Analytic resources would be better spent refining the Hsiao estimates of relative work and the Commission's estimates of practice costs for pathology services than in developing a charge-based fee schedule for these services.

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CHAPTER 3

EVALUATION AND MANAGEMENT SERVICES IN THE MEDICARE FEE SCHEDULE

RECOMMENDATIONS

The coding system for evaluation and management (EM) services should be revised so that visits are classified on the basis of time as well as site of service, type of patient, and referral status.

The legislative mandate to HCFA to group evaluation and management codes for payment purposes should be delayed until the above mentioned reform of coding for these services is completed.

A national fee schedule requires that the codes for physician services be interpreted uniformly by all physicians and carriers in all regions of the country. Only then can relative values be assigned to services that accurately reflect the resource costs involved. But physicians in different parts of the country, in different specialties, and within each specialty do not use current codes for evaluation and management (EM) services to bill for services that entail similar amounts of work. This makes it difficult to assign accurate values to these codes in a relative value scale based on resource costs.

Analysis by the Commission and by Professor Hsiao and his colleagues suggests that the physician's time is a good predictor of the work involved in each type of visit. This prediction is similar for physicians in different specialties and in different parts of the country. Thus, incorporating time in the definitions of EM codes would allow more accurate relative values to be assigned to these services. Physicians would have clearer guidelines for using EM codes, and carriers would have a better way of determining whether physicians were billing correctly for visits and consultations.

If time were incorporated in the definitions of EM codes, physicians would not receive a uniform payment per minute. The Commission's analysis suggests that the relationship between work and time varies depending on the site of service, type of patient, and referral status. Thus, physicians would receive different payment for providing different types of visits that last the same amount of time. The analysis also suggests that the relationship between work and time is not linear, so physicians would receive more payment for providing more visits of a given type per hour of patient contact time.

This chapter presents analytic work by the Commission that supports its decision not to use the current coding system, or a variant of it containing fewer codes, to describe EM services in the Medicare Fee Schedule. The chapter then reviews work by the Commission and by Professor Hsiao and his colleagues that supports the Commission's recommendation to incorporate time in the definitions of EM codes. It concludes with a specific plan for instituting this reform.

CODING REQUIREMENTS OF A RESOURCE-BASED FEE SCHEDULE

The coding requirements of a resource-based fee schedule are, in many ways, similar to those of the current Medicare customary, prevailing and reasonable (CPR) system. For example, they require that the coding system:

- be understood clearly and uniformly by all providers, payers and beneficiaries;
- assign separate codes to services only if they can be consistently and verifiably differentiated by providers and carriers;
- be simple and efficient for physicians to use and carriers to administer;
- facilitate the appropriate use of codes and allow carriers to detect misuse;
- not compromise access to care or quality of care;
- promote equity among physicians; and
- facilitate the generation of accurate data about services provided.

In one important way, however, the coding requirements of a national resource-based fee schedule are unique. If the value of each service is to be determined by the cost (time, effort and overhead) of providing it efficiently, each service should be identified by a code that represents a similar resource cost to all physicians who use it in all regions of the country. This is a prerequisite for assigning accurate relative values to services. It is also necessary to ensure consistent and equitable payment. A code may not meet this requirement if its meaning is unclear or if it is used to represent a group of heterogeneous services.

THE CURRENT CPT CODING SYSTEM

The Health Care Financing Administration Common Procedure Coding System (HCPCS) uses the American Medical Association's *Current Procedural Terminology*

(CPT) to describe the two types of services provided by physicians: technical procedures and visits. Technical procedures are operations, laboratory and imaging studies, and diagnostic and therapeutic services requiring specialized equipment. Visits are composites of evaluation and management services, such as the history and physical examination, review of records, patient and family counseling, contact with other health professionals, charting and scheduling. If both EM services and a technical procedure are provided during an encounter, the physician is usually allowed to bill separately for the procedure and the visit.[1]

Each CPT code for a technical procedure represents a specific service performed by a limited number of specialties in a relatively uniform way. Each procedure code, therefore, is likely to be homogeneous in terms of resource costs. Each CPT code for a visit or consulting service, however, is used by virtually all specialties and represents a heterogeneous collection of EM services. The CPT coding system classifies visit services on the basis of site of service, type of patient, referral status and sequence of care.[2] Levels of service (minimal, brief, limited, intermediate, extensive, comprehensive and complex) are used to differentiate visits within each class. If the classes or levels of service are interpreted differently by different physicians, each CPT visit code may be too heterogeneous in terms of resource costs to be assigned a specific and reliable value.

Problems with the Current System

In its March 1988 Report to Congress, the Commission suggested that there might be a poor correlation between current codes for EM services and the resources expended by physicians. Data analysis by the Commision now provides evidence that physicians do not interpret CPT visit codes to represent services that are similar in terms of time or work. This is true within specialties as well as across specialties and for all classes of visits. The substantial variation in interpretation is most likely related to the ambiguous definitions for the levels of service that differentiate visits within each class of code.

The USC Study. The first line of evidence comes from the University of Southern California (USC) National Study of Medical and Surgical Specialties (Mendenhall et al., 1978; Mendenhall, 1981). This study, which was completed ten years ago, surveyed 10,000 physicians in 24 specialties regarding 360,000 patient encounters.

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[1] The physician is not allowed to bill separately for a visit if it is included in a global fee.

[2] The following sites are used to classify CPT visit codes: office, home, hospital (routine and critical care), skilled care facility, nursing home and emergency department. Visits are also classified by type of patient (new and established), referral status (consultation, confirmatory consultation, concurrent care), and sequence of care (initial, subsequent or follow-up, and discharge services). CPT also has codes for specialized visit services, such as psychiatric, ophthalmologic, preventive, postoperative, telephone, after-hours and holiday services.

The USC study provided the Commission with a database to examine the relationship between the duration of visits (an important element of resource costs) and the CPT codes used to describe them. Each encounter in the survey was classified according to site of service, type of patient (new or established), referral status, and one of five levels of "complexity" that corresponded to the CPT levels of service in use at that time. This made it possible for the Commission to reconstruct the visit or consultation code most likely to have been used to bill for each encounter. Physicians in the study also recorded face-to-face time and procedures that were ordered and performed during each encounter. By excluding encounters in which technical procedures (which would have been billed and paid separately) were performed, the Commission created a file in which face-to-face encounter time reflects only the time that physicians spent providing EM services.

The encounter times for the reconstructed visit and consultation codes are presented in Table 3-1. The mean encounter time is longer for each progressive level of service within each class of code. But the coefficients of variation are so large (50-150 percent of the mean) that it is difficult to distinguish adjacent level codes confidently on this basis.[3]

Most of the variation in encounter time is not explained by the current CPT coding system or by consistent differences in the use of codes by physicians in different specialties. CPT levels of service and visit classification variables (site of service, type of patient, and referral status) explain only 19 percent of the observed variance in encounter time. Adding specialty to the CPT system explains only 25 percent of the variance. These results suggest that it would be difficult to predict the duration of a visit assigned to a specific CPT code, even if specialty differentials were implemented.

The Hsiao Study. The Commission's analysis of data from the USC study suggests that each CPT visit/consultation code is not homogeneous in terms of face-to-face encounter time. Analysis of data from Phase I of the Hsiao study confirms this finding and further suggests that each CPT visit/consultation code is not homogeneous in terms of work.[4]

In the Hsiao study, each CPT visit code was surveyed in 1-12 specialties with from 1-27 vignettes[5]. Hsiao and his colleagues reported substantial (up to three-fold) variation in the time and work associated with each of these codes (Braun et al., 1988). This was true when average values of time or work were compared for

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[3] The coefficient of variation is the ratio of the standard deviation to the mean, expressed as a percentage.

[4] The methodology developed by Professor Hsiao and his colleagues for estimating relative physician work is discussed in Chapter 2.

[5] Some of these vignettes were the same in different specialties.

Table 3-1. Relationship Between Encounter Time and Codes for EM Services

RECONSTRUCTED CODE	MEAN ENCOUNTER TIME (MINUTES)	STANDARD DEVIATION	COEFFICIENT OF VARIATION
Office - New Patient			
Minimal	11	8	0.73
Brief	11	7	0.63
Limited	16	11	0.71
Extended	28	18	0.66
Comprehensive	42	23	0.55
Office - Established Patient			
Minimal	8	6	0.70
Brief	10	6	0.59
Limited	13	7	0.56
Extended	18	12	0.65
Comprehensive	22	18	0.83
Hospital - Initial			
Minimal	9	9	0.98
Brief	10	11	1.14
Limited	15	12	0.79
Extended	24	24	1.00
Comprehensive	31	26	0.84
Hospital - Subsequent			
Minimal	7	9	1.40
Brief	8	7	0.80
Limited	12	12	1.00
Extended	16	19	1.21
Comprehensive	19	30	1.59
Consultation - Initial			
Minimal	12	12	0.96
Brief	14	14	0.95
Limited	20	15	0.74
Extended	31	20	0.63
Comprehensive	39	25	0.64
Consultation - Follow-up			
Minimal	7	6	0.82
Brief	9	6	0.66
Limited	14	11	0.78
Extended	18	17	0.94
Comprehensive	22	26	1.19

Source: PPRC analysis of data from the USC study.

vignettes assigned to the same CPT code within each specialty. It was also true when average values of time or work for all of the vignettes assigned to each CPT code were compared across specialties.

The Commission's analysis of these data, which is based on individual physician responses for each vignette, confirms these findings. The coefficients of variation for intraservice time and intraservice work for each CPT code are substantial (22-92 percent of the mean for intraservice time and 42-303 percent of the mean for intraservice work). The variation is similar for all types of vignettes and all classes of EM codes and occurs to a similar extent in all specialties.

Although the variation presented in the analyses of data from the Hsiao study is large, it may underestimate the true range of time and work each CPT visit code entails. Individual physicians in the Hsiao study did not assign their own codes to vignettes. Instead, codes were assigned by members of each specialty's Technical Consulting Group. This was a straightforward process for coding technical services. But consultants within each specialty often differed in their assignment of CPT codes to EM services and their decisions sometimes differed from those of the coding consultants from CPT.[6] If codes had been assigned by individual physicians, each code might have been assigned to a wider range of vignettes. Uncertainty about coding also resulted in rank-order anomalies. For example, a vignette classified as a limited service sometimes received higher ratings of time and work than a vignette classified as an intermediate service. When this occurred, codes were reassigned by the researchers.[7]

The Current Coding System in a Resource-Based Fee Schedule

The current EM coding system would create serious inequities if payment were based on a national resource-based relative value scale. Physicians in different parts of the country, in different specialties, and even within each specialty interpret CPT visit codes to represent services that vary substantially in terms of time and work. Thus, if one relative value were assigned to each EM code, different physicians would not necessarily use it to bill for the same EM services or for services that entail similar resource costs.

A recent study by the Office of the Inspector General demonstrated striking differences in the way physicians use CPT codes to bill for EM services in different Medicare carrier areas (U.S. Department of Health and Human Services, Office of the Inspector General, 1988). For example, a limited level of service accounts for 6 percent of the codes used to bill for subsequent hospital care in one carrier area but 94 percent of the codes in another carrier area. If uniform national values were assigned to current visit codes, they would not be applied to the same EM services in different carrier areas. If regional values were assigned to the codes to accommodate regional differences in interpretation, the product would not be a national relative value scale.

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[6] The CPT consultants were from the Division of Health Policy and Program Evaluation of the AMA.

[7] Hsiao and his colleagues may underestimate the range of time and work each CPT visit code entails for another reason. To control for variance due to random measurement error, these researchers reported their findings in terms of the average values of work or time for each vignette. This type of analysis could have masked any variance related to differences in actual practice, such as different interpretations of each vignette that might reflect differences in component EM services or the efficiency with which they are provided.

The current EM coding system would also not result in a uniform relative value scale that could be used by physicians in all specialties. Under the current CPR system, most carriers allow specialists different payment when they bill for a service with the same CPT visit code. This practice accommodates specialty-specific differences in the interpretation of these codes. Specialty differentials would also be required in a resource-based fee schedule if EM codes were not interpreted and used more uniformly.

It is important to point out that even if regional, specialty-specific values were assigned to EM codes, payment would still not be equitable under the current coding system. Physicians in the same specialty practicing in the same locality do not use CPT visit codes in the same way. The Commission's analysis of data from the USC and Hsiao studies suggests that some physicians may consistently use a visit code to represent services that involve much more time and work than others.[8] If the relative value assigned to a code differs substantially from the average resource costs that a physician associates with it, payment for that physician would be inequitable. If some of the variation in the resource costs of visits is related to patient characteristics, payment based on the current coding system could compromise access to care and quality of care.[9]

Even if equitable values could be assigned to current codes, physicians would not be likely to use them more appropriately in a resource-based fee schedule than they do now. Imprecise CPT definitions for levels of service make it difficult for physicians, carriers and beneficiaries to differentiate codes within each class of visit. If payment for visit services were increased under a resource-based scale, improper use of codes could be more costly.

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[8] In the USC study, there were consistent differences among individual physicians in the time associated with visits assigned to a certain "code". In the Hsiao study, there were consistent differences among individual physicians in their intraservice work/intraservice time ratios for EM vignettes. In both cases, the intra-physician correlation was approximately 30 percent.

[9] For example, the EM services that physicians provide for frail, elderly patients with complex medical problems may entail greater resource costs than the services they provide for younger, healthier patients. If the coding system does not clearly differentiate these services, one code (and one relative value) would be applied to visits with both types of patients. This would be inequitable for physicians who care predominantly for frail, elderly patients and might encourage them to provide less extensive EM services or to care for a younger, healthier population.

Table 3-2. Physicians' Use of EM Codes Under the Current CPR System

CPT CODE	FEE[a] (IN DOLLARS)	DISTRIBUTION OF VISITS[b] (PERCENT IN CLASS)
Office - New Patient		N = 5,289,260
Brief	23	7
Limited	30	16
Intermediate	35	30
Extended	35	6
Comprehensive	60	42
Office - Established Patient		N = 88,773,120
Minimal	12	1
Brief	17	12
Limited	21	41
Intermediate	26	36
Extended	34	7
Comprehensive	51	4
Hospital - Initial		N = 7,083,000
Brief	46	6
Intermediate	59	26
Comprehensive	77	68
Hospital - Subsequent		N = 62,742,000
Brief	20	12
Limited	25	35
Intermediate	30	40
Extended	38	9
Comprehensive	37	4
Consultation - Initial		N = 5,059,800
Limited	51	7
Intermediate	56	8
Extended	71	12
Comprehensive	94	58
Complex	119	16
Consultation - Follow-up		N = 912,500
Brief	21	2
Limited	30	7
Intermediate	36	72
Complex	48	20

Source: PPRC analysis of data from the 1986 BMAD file.

Note: [a] The fees in this table are "1988" national average allowed charges for physicians in 16 medical and surgical specialties. To calculate "1988" charges, 1986 allowed charges from the BMAD III Provider File were inflated by the physician services component of the all-urban Consumer Price Index subject to 1988 Maximum Allowable Actual Charge (MAAC) limits.

[b] The number and distribution of visits pertain to EM billings by 16 medical and surgical specialties in 1986.

CODING REFORM TO REDUCE THE NUMBER OF CPT VISIT CODES

Some have suggested that reducing the number of levels of service would address many of the problems associated with current CPT visit codes. To this effect, the Omnibus Budget Reconciliation Act of 1986 directed the Secretary of Health and Human Services to "group codes for payment purposes to minimize inappropriate increases in the intensity or volume of services provided as a reult of coding distinctions which do not reflect substantial differences in the services rendered" by January 1, 1990.[10] But this type of reform, if implemented without incorporating time in the definitions for levels of service, would not improve the current system. In a resource-based fee schedule, a system with fewer codes would encourage neither more equitable payment for EM services nor more appropriate use of EM codes.

Two options could be considered for reducing the number of visit codes. Adjacent levels in the current system could be combined, producing fewer levels of service (such as minimal/brief, limited/intermediate, and extensive/comprehensive). Alternatively, levels could be defined in a new way (for example, on the basis of the less than routine, routine, and more than routine service).[11]

These options would not permit precise values to be assigned to EM services under a resource-based relative value scale. In a coding system with fewer levels, each level must encompass a broader range of EM services. Thus, the values assigned to "grouped" codes would be less likely to represent any one physician's average service than the values assigned to current codes. Since physicians in different regions of the country or different specialties would not be likely to interpret the new levels any more uniformly than they interpret current codes, a uniform national relative value scale would probably be as inequitable with these options as with the current coding system.[12]

The Commission's analysis of data from the 1986 Part B Medicare Annual Data Provider File (BMAD III) and the USC study suggests that a reduction in the number of levels of service would also be unlikely to curtail misuse and abuse of EM codes. Under the current Medicare system, physicians use midrange and high

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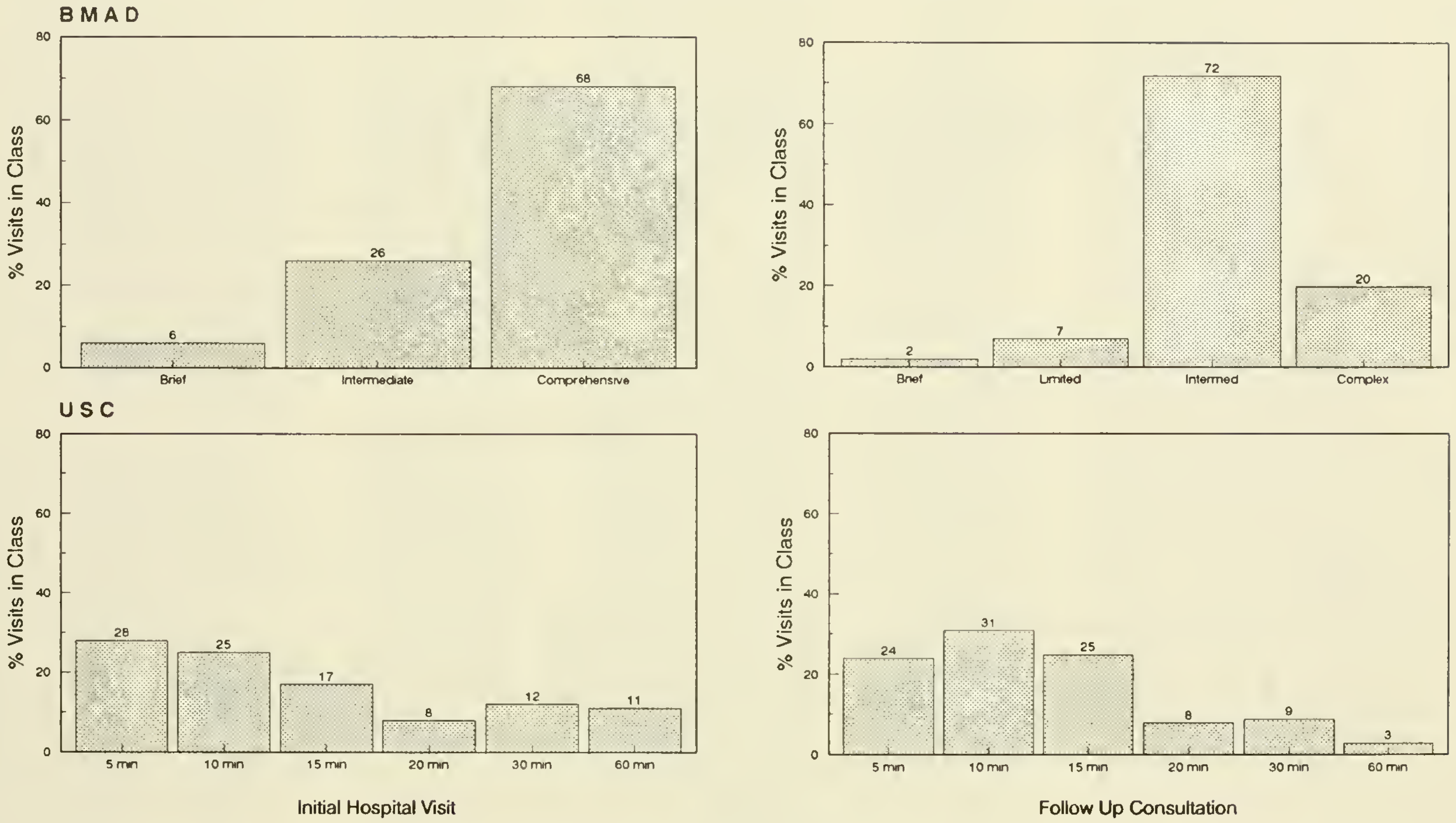
[10] Omnibus Budget Reconciliation Act of 1986 (P.L. 99-509), Section 9331 (d)(2).

[11] This is one type of visit coding system that predated CPT.

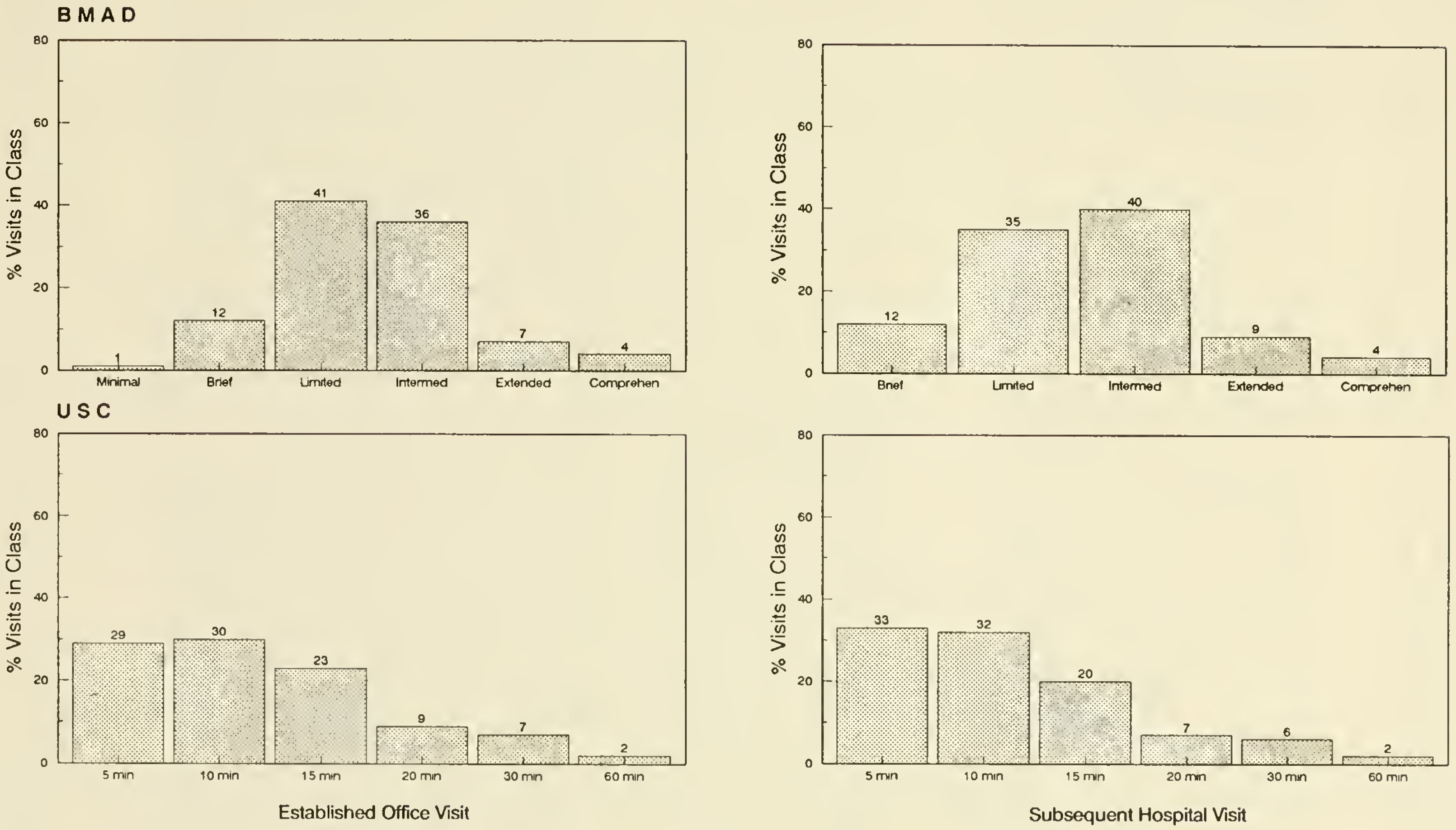
[12] Although average values could be assigned to levels that combine current CPT descriptors, they could not be assigned to levels that are defined on a new basis other than time. For example, data from the Hsiao study could not be used to assign relative values to services defined on the basis of the routine visit. EM vignettes in this study did not specify the routine service for each class of visit. Moreover, the average relative work value for each class of visit does not necessarily correspond to its routine EM service. This is because the frequency with which EM services are represented in the Hsiao study does not correspond well with the frequency with which these services are provided by physicians.

Figure 3-1. Distribution of Initial Hospital Visits and Follow-up Consultations



Source: PPRC analysis of data from the 1986 BMAD file and the USC study.

Figure 3-2. Distribution of Established Patient Office Visits and Subsequent Hospital Visits



Source: PPRC analysis of data from the 1986 BMAD file and the USC study.

level codes to bill for most of their EM services (Table 3-2). But the levels of intensity used for billing do not always correlate well with the duration of visits, particularly for visit classes with the fewest levels of service (Figure 3-1). The correlation is better for visit classes with more levels of service (Figure 3-2).

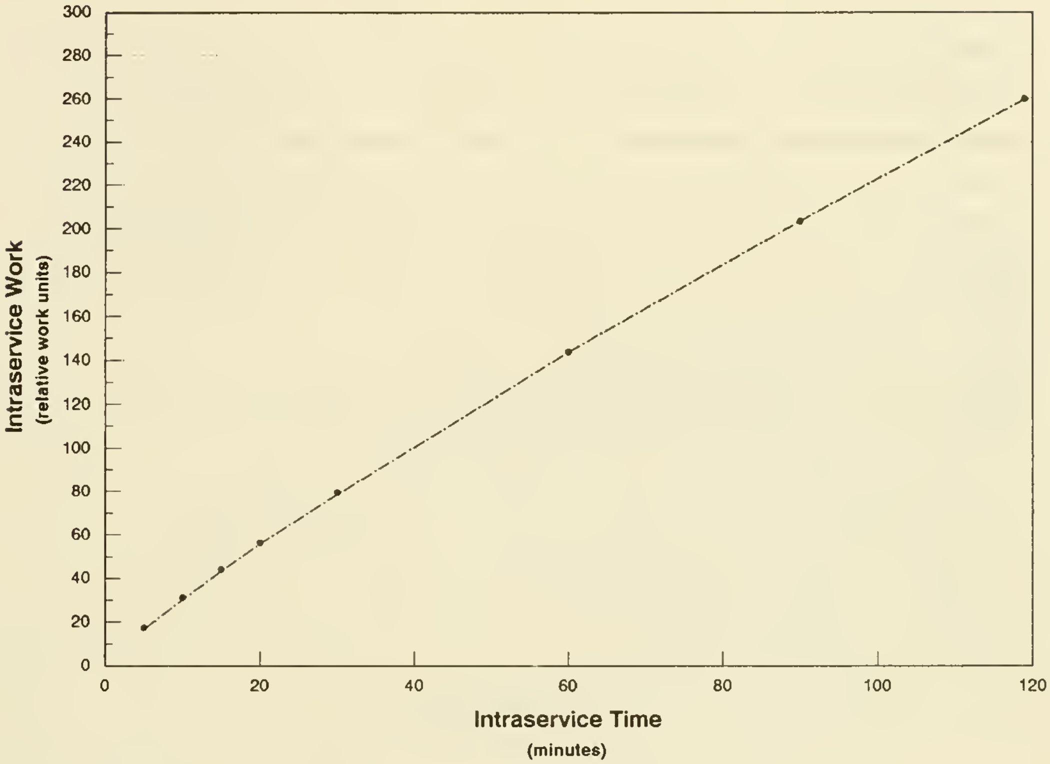
To the extent that encounter times in the USC study reflect current Medicare practice, these findings suggest that reducing the number of levels of service would not prevent physicians from using higher level codes to bill for their services. The reasons for this apply to both the current CPR system and a resource-based fee schedule. As discussed above, when fewer levels are used in an EM coding system, each level encompasses a broader range of services and proportionally fewer visits fall within the midrange of each code. If physicians perceive their EM services to be more intense or extensive than the average description of a level of service, they may be more likely to use the next highest level code for billing. Since differences in payment between adjacent codes are more pronounced with fewer levels of service, this approach to coding reform may create greater financial incentives for "upcoding."

The current imprecise distinctions between CPT visit codes make such "upcoding" easy for physicians to rationalize and difficult for carriers to detect. Moreover, since many physicians view current Medicare payment for EM services as inequitable, they may feel justified in choosing EM codes on the basis of payment rather than CPT definitions. Reducing the number of visit codes would be unlikely to correct these problems under the current CPR system. The difficulty of assigning precise and equitable values to "grouped" EM codes means that reducing the number of codes would be just as unlikely to control "upcoding" under a resource-based fee schedule. Physician payment reform combining more precise definitions for levels of service with more accurate and equitable fees would provide physicians with strong incentives to use EM codes appropriately. This would curtail misuse and abuse (the goals of the legislative mandate) more effectively than "grouping" codes.

EM CODING REFORM THAT WOULD INCORPORATE TIME

Analysis of survey data from the Hsiao study suggests that time is more reliable than current levels of service in predicting the work involved in each class of visit. Incorporating time in the definitions for levels of service would allow more accurate and equitable national relative values to be assigned to EM services. It would provide physicians with guidelines for using codes properly and carriers with an effective means for auditing claims. By providing physicians with higher payment for lengthier visits, it could also improve quality of care and access to care for frail, elderly beneficiaries with complex medical problems.

Figure 3-3. Predicted Intraservice Work (Established Patient Office Visit)



Source: PPRC analysis of data from Phase I of the Hsiao Study.

PPRC Analysis of Work and Time in Phase I of the Hsiao Study[13]

The Commission's analysis of data from Phase I of the Hsiao study demonstrates that physicians' estimates of work for EM services are closely correlated with their estimates of time. But the relationship between work and time is not the same for every class of visit. This is because some types of visits involve more effort (work per unit time) and/or more fixed resource costs (work unrelated to the duration of the encounter) than others. If the type of patient, site of service, referral status, and duration of an encounter are known, the work involved in a visit can be predicted accurately. This prediction is similar for physicians in different specialties.

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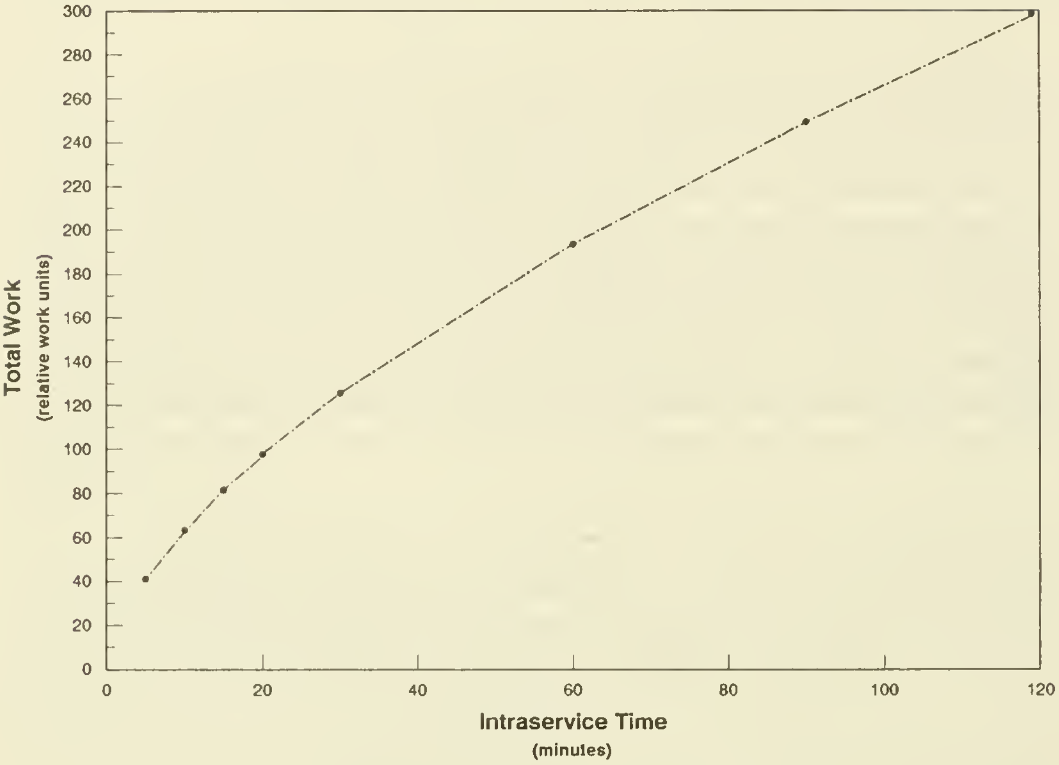
[13] Susan Marquis, Ph.D., Senior Economist at the Rand Corporation, worked with the Commission on this analysis.

Figure 3-4. Predicted Total Work (Established Patient Office Visit)



Source: PPRC analysis of data from Phase I of the Hsiao Study.

The Commission's analysis, described in more detail in Appendix B, is a preliminary indication of the relationship between work and time that is likely to result from the completed Hsiao study.[14] The Commission will repeat its analysis with more and better data when the results of Phase II are available.

The general relationship. The analysis used multiple regression to develop a model to predict physicians' estimates of work from their estimates of time. This model, which relates log work to log time, is presented graphically in Figures 3-3 and 3-4. Figure 3-3 is the relationship between intraservice time and intraservice work. Figure 3-4 is the relationship between intraservice time and total work. These relationships are curvilinear rather than linear and suggest that the average intensity (work per unit of patient contact time) of a shorter visit is greater than for a longer visit. This implies that a portion of the resource costs (time and effort) associated

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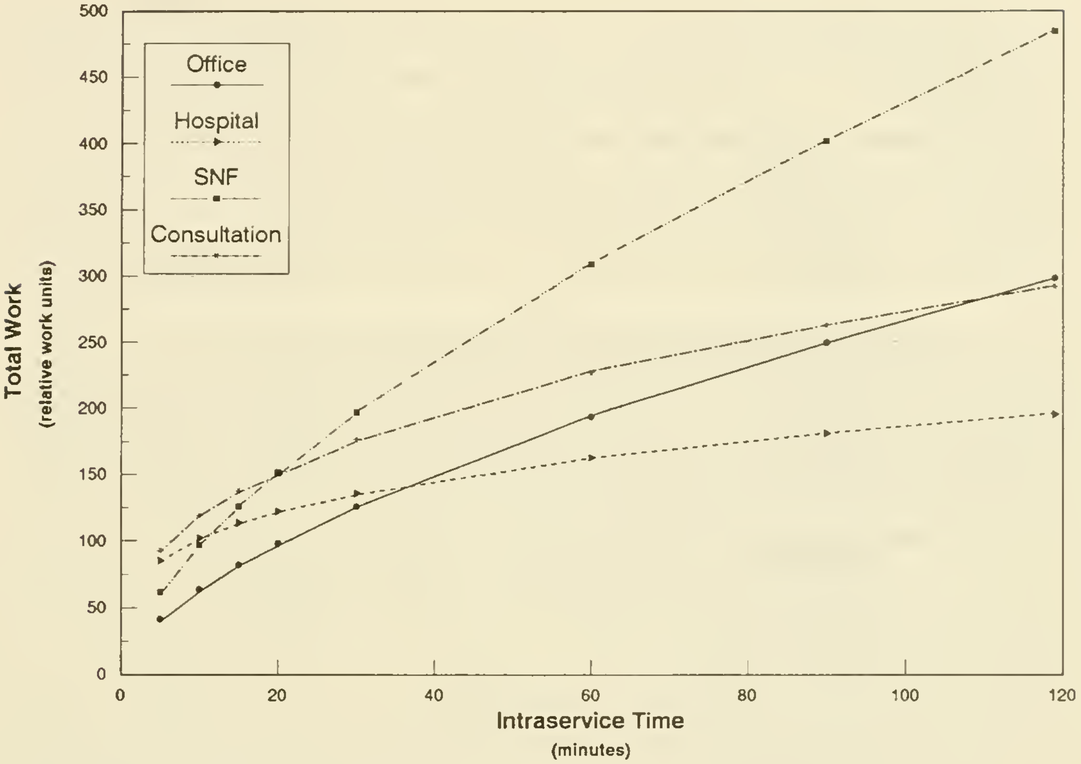
[14] The Commission's analysis differs from that reported by Hsiao and his colleagues in several important ways (see Appendix B).

Figure 3-5. Predicted Total Work (Established Patient)



Source: PPRC analysis of data from Phase I of the Hsiao Study.

with each patient visit is unrelated to the duration of the face-to-face encounter. In other words, some proportion of the resource costs are "fixed." Since the slope is flatter for the relationship describing total work (Figure 3-4) than intraservice work (Figure 3-3), some of the fixed costs appear to involve pre- and postservice work as well as intraservice work.

Specialty. Specialty and visit classification variables have a statistically significant effect on the relationship between work and time in this model. The effect of specialty, however, appears to be small. For most specialties, the predicted values of work are very similar (within 10 percent) whether or not the model is specialty-specific.[15] Since different specialists estimate work similarly for visits that involve

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[15] This is true for visits of short, medium and long duration for the (intraservice time)/(intraservice work) relationship and for visits of short and medium duration for the (intraservice time)/(total work) relationship. The difference in predicted total work values for long visits with the two models is greater (see Appendix B).

Table 3-3. Illustrative Model of Time-Incorporating EM Codes

CODE (FACE-TO-FACE ENCOUNTER TIME)	FEE (IN DOLLARS)
Office - New Patient	
5 min	28
10 min	41
15 min	53
20 min	64
30 min	81
60 min	113
Office - Established Patient	
5 min	17
10 min	26
15 min	35
20 min	43
30 min	54
60 min	75
Hospital - Initial	
5 min	59
10 min	69
15 min	77
20 min	84
30 min	93
60 min	107
Hospital - Subsequent	
5 min	32
10 min	39
15 min	44
20 min	49
30 min	56
60 min	65
Consultation - Initial	
5 min	62
10 min	78
15 min	98
20 min	102
30 min	119
60 min	143
Consultation - Follow-up	
5 min	35
10 min	46
15 min	55
20 min	64
30 min	74
60 min	92

Source: PPRC analysis of data from Phase I of the Hsiao study.

the same amount of time, specialty differentials would probably not substantially increase the accuracy of an EM coding system that incorporates time.[16]

Type of patient. The effects of visit classification variables (site of service, referral status, and new/established patient) are greater than the effects of specialty. A visit with a new patient is associated with 18 percent more intraservice work and 38 percent more total work than a visit with an established patient. This suggests that a new patient visit entails more intraservice work per unit time (such as the additional effort involved in evaluating one or more new problems) and more pre- and postservice work per unit time (such as the additional effort involved in reviewing old records and documenting the differential diagnosis and therapeutic plan in the chart).

Site and referral status. Site and referral status influence the shape of the curve relating intraservice time and total work (Figure 3-5). This means that these variables influence both the work per unit time and the proportion of fixed resource costs involved in visits. For example, the work per unit of patient contact time is consistently greater for nursing home visits than for office visits. This difference may be related to the multiple and complex medical problems that are characteristic of the elderly nursing home population. On the other hand, the work per unit of patient contact time is not always greater for hospital visits than for office visits. Unlike office visits, much of the work involved in hospital visits is unrelated to the duration of the patient encounter (for example, dictating the hospital note, writing orders, and discussing the patient with hospital staff and consultants). As a result,

Table 3-4. Face-to-Face Encounter Time Intervals in the USC Study

TIME INTERVAL (MINUTES)	MEAN (MINUTES)	STANDARD DEVIATION	COEFFICIENT OF VARIATION
Less than 7.5	5	1.31	.28
7.5 - 12.5	10	0.82	.08
12.6 - 17.5	15	0.36	.02
17.6 - 25.0	20	0.63	.03
25.1 - 45.0	30	4.05	.13
Greater than 45.1	60	30.90	.52

Source: PPRC analysis of data from the USC study.

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[16] When this analysis is repeated with data from more specialties, we will be able to form a better judgment of the contribution that specialty differentials could make in explaining variation in the work/time relationship for different types of visits.

the difference in total work for a short and long encounter is not as great in the hospital as in the office.

The magnitude and clinical relevance of these effects suggests that it would be important to retain current CPT visit classification variables in an EM coding system that incorporates time. A large part of the variance in work for EM services can be accounted for by time and these variables. Together, they explain 68 percent of the variance in individual physician estimates of the log of intraservice work.[17] [18] If total work values were assigned to visits using class-specific relationships between work and time, then differences in effort related to the type of patient, site of service, and/or referral status would be reflected in different fees for different types of visits that last the same amount of time.[19]

An EM Coding System Incorporating Time

The preceeding analysis suggests a structure for incorporating time in an EM coding system. EM services could be classified on the basis of variables that substantially modify the work/time relationship or that are important for monitoring purposes. Visits within each class could be differentiated on the basis of time.

This reform would require very little change in the current CPT coding system. All of the CPT visit classification variables that could be studied adequately with data from Phase I of the Hsiao study have an important effect on the relationship between work and time. Therefore, the current visit classification scheme (for example, new patient office visit, subsequent hospital visit, initial consultation) would be retained. The only required change would be in the definitions for levels of service. Time would be incorporated in these definitions and would be used to assign relative work values to each level code using the specific work/time relationship that applies to each class of visit code.

Structure of Fees for EM Services. The fees in this type of coding system would reflect the relationship between work and time for each class of visit. For purposes of illustration, a model based on the Commission's analysis of data from Phase I of the Hsiao study is presented in Table 3-3. In this model, levels of service are defined on the basis of face-to-face encounter time, but the fee for each level code reflects the non-face-to-face as well as face-to-face work involved in the visit.[20]

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[17] We should point out that time, in conjunction with CPT classification variables, explains 95 percent of the variance in mean values of the log of intraservice work for EM vignettes. (Hsiao and his colleagues reported their findings in this manner). But this number may overestimate the fraction of the variance in actual physician work explained by time since there is less variance to explain in the mean of the log of work than in the log of work.

[18] Multivariate analysis also shows that time explains the variance in work twice as well as current CPT levels of service.

[19] The structure of fees is discussed further below.

As discussed above, the Commission's analysis describes a curvilinear relationship between work and time in which the overall amount of work per unit of patient contact time is greater for shorter than for longer visits (Figure 3-4). If this type of relationship were used to assign relative work values to codes within each EM class, physicians would receive more payment if they provided more visits of a given type per unit of patient contact time. For example, if the fees in Table 3-3 were implemented, a physician would receive $108 for providing two 30 minute established patient office visits, but $156 for providing six ten-minute established patient office visits. The payment per unit of total work is the same for visits of both durations. The difference in payment reflects the fact that the non-face-to-face work is not proportional to the duration of the patient encounter. In other words, it does not involve three times as much work to review the office record, obtain test results, and chart for a 30 minute encounter as for a ten-minute encounter. Thus, it would be appropriate for physicians to receive more payment for providing more of the shorter office visits per unit of patient contact time.[21] The effect on revenues, however, would not be as great as it would appear from the differences in payment. This is because the larger proportion of pre-and postservice time associated with shorter patient encounters limits the number of these visits that a physician can provide on any given day.

In this type of system, physicians who see more patients per day would not necessarily be paid more than those who see fewer. Since the relationship between total work and intraservice time is different for each class of EM service, total EM payment would also depend on the specific mix of EM services provided. This is illustrated in Table 3-3. Visit classes that involve more work per unit time would be associated with higher fees for the same level of service. For example, if the fees in Table 3-3 were implemented, a physician would be paid $81 for a 30 minute new patient office visit, but $54 for an established patient office visit lasting the same amount of time.

Classes of EM services that involve much more pre- and postservice work than others would be associated with relatively high fees for short patient encounters. For example, since payment for initial consultations encompasses extensive non-face-to-face activities, such as reviewing old records, initiating the chart, reviewing the literature, and sending a report to the referring physician, a physician would receive $78 for a ten-minute consultation.

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[20] The specific times used in these codes were derived from an analysis of data in the USC study (Table 3-4). Since this analysis identified six discrete encounter times in clinical practice, six levels of service are used to describe each class of EM code in this model. As a result, the number of codes for EM services is greater than the number currently used by CPT.

[21] This fee structure, based on the non-linear relationship between work and time, would reward physicians for providing EM services more efficiently. Thus, it would limit any incentives for reduced productivity that could be associated with a time-incorporating EM coding system.

Classes of visits with the greatest proportion of fixed resource costs would be associated with the narrowest range of fees. For example, much of the work involved in initial hospital visits is unrelated to the duration of the patient encounter (dictating the hospital note, writing orders, and discussing the patient with nursing staff, housestaff and consultants). This would be reflected in the relatively narrow range of fees for these services: $59 for a five-minute encounter and $107 for an encounter lasting 60 minutes.[22]

In summary, if time were incorporated in definitions for levels of service, physicians would not receive a uniform payment per minute. Instead, they would receive more payment for providing more visits of a given type per unit of patient contact time and different payment for providing different types of visits that involve the same amount of patient contact time. Since differences in efficiency and effort would be rewarded, the structure of fees would not resemble salaried payment.

Uniform application of codes. Incorporating time into an EM coding system would facilitate the development of an equitable national resource-based relative value scale. Physicians in different specialties and in different geographic regions appear to estimate work similarly for visits in each class that last the same amount of time. Thus, if EM codes were based on the type of patient, site of service, referral status, and the duration of the visit, different specialists in different parts of the country would be likely to use identical codes to bill for services that entail similar resource costs. This would allow equitable fees to be assigned to EM services, which would, in turn, make it more likely for physicians to use EM codes appropriately.

Claims Processing. This type of coding reform would also provide carriers with a more effective means for auditing claims. Data related to the duration of visits is collected routinely in a number of surveys (for example, the National Ambulatory Medical Care Survey). If the measure of time used in the codes (for example, face-to-face encounter time) corresponded to the time surveyed, and if the types of visits most commonly provided (such as office and hospital visits) were surveyed, carriers would be able to identify the mix of codes that each specialty would be expected to use for billing. Specialty-specific profiles could then be developed for physician screening.

Impact on Beneficiaries. An EM coding system incorporating time could improve quality of care and access to care for beneficiaries. This reform would allow more accurate relative work values and more equitable fees to be assigned to EM services. It would also provide physicians with higher fees for lengthier visits. Thus, physicians might be more willing to care for the most time-consuming patients, such as those with chronic diseases and the frail elderly, and to spend the necessary time with other patients to understand their problems, educate them about their diseases, and help them make health-related decisions. Since the fees in this system would be applied explicitly to the total work involved in visits, physicians also might be more likely to coordinate their care of patients with the care of other providers.[23]

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[22] The range of fees for hospital visits in the illustrative model may be narrower than one would expect. The slope of the curve describing the relationship between work and time for hospital visits will be reexamined after more and better data is available from the completed Hsiao study.

This type of coding reform would also provide beneficiaries with bills for EM services that are easier to understand. Currently, a beneficiary may receive a bill for a comprehensive consultation after spending ten minutes with one physician and a bill with an identical code and descriptions after spending two hours with another. If encounter times were incorporated in the definitions of EM codes, discrepancies like this would be less likely to occur. Physicians would have better guidelines for using codes and beneficiaries would be able to tell whether the bill they received was appropriate.

WORKPLAN FOR INCORPORATING TIME IN AN EM CODING SYSTEM

Incorporating time into an EM coding system will satisfy the coding requirements of a national resource-based fee schedule. But the Commission needs additional data to calibrate the system and a consensus process to resolve outstanding issues before it can make a definitive recommendation for instituting this reform.

Calibrating the System

Relative total work values will be assigned to the new codes based on an analysis of the relationship between work and time for each class of visit. The preliminary analysis presented in this chapter is based on incomplete data and unreliable estimates of total work. The Commission will repeat its analysis when more and better data are available from the completed Hsiao study and the Commission's Visit Survey.

Hsiao Study. Only 16 specialties that provide EM services were surveyed in Phase I of the Hsiao study and not all of them were surveyed about all types of EM services. Moreover, each class of EM service was surveyed with a different number of vignettes.[24] A more representative and comprehensive database will be available at the completion of the study.

Accurate calibration will also require more reliable estimates of total work for EM services. In Phase I of the Hsiao study, physicians did not give direct estimates of total work for each EM vignette. Instead, total work was imputed from physicians' estimates of intraservice work and pre- and postservice time.[25] These calculated values are not reliable because they are based on limited data about pre- and postservice time and depend on one or more unsubstantiated assumptions (see Chapter 2). In Phase II of the Hsiao study, better and more direct estimates of total work for EM services are anticipated.

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[23] Higher fees for EM services would be associated with higher coinsurance payments and this could pose a barrier to care. But higher fees for EM services are a consequence of basing a relative value scale on resource costs. They are not related to the EM coding system per se.

[24] In Phase I of the Hsiao study, new and established patient office visits were each surveyed with 42 vignettes, initial consultations with 19 vignettes, subsequent hospital visits with eight vignettes, initial hospital visits with six vignettes, subsequent nursing home visits with four vignettes, and follow-up consultations with one vignette.

[25] The Commission used a different method for calculating total work than Hsiao and his colleagues (see Appendix B).

Commission Visit Survey. The Commission is currently conducting a survey that will provide data that can be used to validate and refine the estimates of time and work in the Hsiao study. This survey will use encounter forms to collect information from physicians and their staffs about the time and work involved in providing face-to-face as well as non-face-to-face EM services for different types of patients. Using clipboards with attached digital watches, physicians and their staffs will record the actual start and stop times for all categories of EM services provided on the day of the visit. They will also provide an estimate of time for EM services related to the visit which were provided before that day or will be provided at a later date. The physician will also estimate the total work of each visit by comparing it to the work of a standard vignette.

The time and work involved in actual patient encounters will be compared to the estimates of time and work for EM vignettes in the Hsiao study. The start and stop times for EM services provided before, during, and after the scheduled visit will be compared to estimates of pre-, intra-, and postservice time in the Hsiao study. Direct estimates of physician total work will be compared to the imputed values of total work from the Hsiao study. More accurate measures of time and more direct estimates of total work should improve our confidence in the relationship between work and time for different classes of EM services.

Consensus Process

In conjunction with the CPT Editorial Panel[26] and the American Medical Association, the Commission will convene a consensus panel made up of physicians representing all specialties that provide EM services, carrier representatives, beneficiaries, and coding experts. This consensus panel will develop a specific recommendation for incorporating time in an EM coding system.

Charge to the panel. The panel will be charged with three principal tasks: integrating time and a description of services in new definitions for levels of service, determining the number of levels of service that will be used to describe each class of visit code, and specifying the classes of visits that will be recognized in the new system. These tasks raise the following questions:

(1) What measure of time will be used in the definitions for levels of service?

Levels of service could be defined on the basis of face-to-face encounter time, scheduled appointment time, or total (face-to-face and non-face-to-face) time. Encounter time is easy to measure and is a simple concept for physicians, carriers and beneficiaries to understand. Since data related to encounter time is collected routinely in several surveys, this option would give carriers access to information that could be used to develop profiles for physician screening. The use of face-to-face time, however, could cause problems in a coding system in which payment is based on total work. For example, to the extent that some physicians routinely provide certain EM services in the presence of the patient that others provide after the patient leaves, payment for EM services could be inequitable.

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[26] The 12 member CPT Editorial Panel includes physician representatives from various specialties as well as medical representatives of HCFA, the Health Insurance Association of America and the Blue Cross and Blue Shield Association. The panel meets four times a year to consider additions, deletions, and modifications to the code. The results of these decisions appear in an annual update of CPT.

Scheduled appointment time is attractive in terms of its simplicity. But an assumption about the relationship between intraservice time and appointment time would have to be made to assign relative work values to these codes.[27] This approach would not resolve the potential inequity related to practice style.

Incorporating total time in EM codes (with or without the addition of encounter time) would accommodate differences in practice style. But the time required to provide all EM services related to a visit may be difficult to measure and, since many of these services are provided in the absence of the patient, codes based on total time could be difficult for beneficiaries to understand and for carriers to audit.

(2) Will the time used in the definitions apply only to patient contact with the physician, or will it also apply to contact with other health care professionals employed by the physician?

Estimates of time and work in the Hsiao study were limited to physician services, but some physicians provide all EM services themselves, while others get help from nurses, nurse practitioners, and physician assistants. If these differences in practice style occur frequently, and if they affect the relationship between time and total work, payment for EM services based on data from the Hsiao study could be inequitable.

(3) How will time and a description of services be integrated in the definitions for levels of service?

Physicians tend to use time to describe the extent and intensity of their EM services. But they would be uncomfortable with an EM coding system that defines levels of service solely on this basis because it would discriminate against more efficient physicians. Carriers would also not like such a system since there would be no way to verify that appropriate visit services had been performed.

There are several ways time and services could be integrated in an EM coding system. For example, encounter times could be associated with a description of services based on the complexity of the presenting problem(s) and the extent of the evaluation. Alternatively, encounter times could be correlated with specific clusters of face-to-face and non-face-to-face EM services. Clear, clinically meaningful, and verifiable definitions would be important for either method.

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[27] In the Supplemental Report to HCFA, Hsiao and his colleagues assumed that intraservice time is 15 percent less than scheduled appointment time. No data is currently available with which to validate this assumption.

(4) How many levels of service will be used to describe each class of visit code?

Although the model in Table 3-3 uses six levels to describe each class of visit code, time could be incorporated successfully in an EM coding system with fewer or more levels of service. Whatever the "appropriate" number of levels, each code should describe a relatively discrete visit service that can be differentiated consistently and verifiably by providers and carriers.

(5) Will the classes of visits remain the same in a time-incorporating EM coding system?

The Commission's analysis demonstrates that all of the current CPT visit classification variables that could be studied adequately with data from Phase I of the Hsiao study have an important effect on the relationship between work and time. Therefore, variables covering the type of patient, site of service, and referral status should be retained in a visit classification scheme.[28] More information is needed before a decision can be made about some of the more specialized CPT classification variables, for example, those related to specialty-specific visit codes for psychiatrists, ophthalmologists, and emergency department physicians.

Although time and current visit classification variables account for much of the variance in work for EM services, some of this variance is still unexplained. Thus, other variables (such as age, frailty, or new problem) might make predictions of the work involved in visits more precise. If these variables could be identified and documented to have a substantial influence on the relationship between work and time, they could be incorporated into an EM coding system.[29]

Data. The panel will consult data from a variety of sources, including the Hsiao study, the USC study, American Medical Association studies, and the Commission's Visit Survey, to help it address these issues.

The Visit Survey will provide information directly related to practice style and non-physician providers. The survey encounter forms will distinguish services provided in the physicians' office from those provided after a patient leaves. In addition, a specific provider (physician, nurse or physician assistant) will be recorded for each EM service. The extent to which practice styles differ may help the panel decide what measure of time to use in defining levels of service and whether time should apply to non-physician providers.

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[28] Since site of service will be specified on the new Medicare claims form, it may not be necessary to include site in the coding system per se. If this approach were adopted, codes would represent the type of patient and level of service, and the payment for each code would vary by site.

[29] In its analysis of data from the USC study, the Commission examined the importance of patient age and number of problems in explaining the variance in face-to-face encounter time. The effect was small; together, thse variables explain only 0.2 percent of the variance. The effects of age and frailty will be studied futher in the Commission's Visit Survey.

The forms will also record the specific EM services related to each visit.[30] If a cluster of specific services is routinely associated with visits that involve a particular amount of time and work, the panel could use this information to integrate time and services in a clinically meaningful way to define levels of service.

Finally, the Visit Survey may identify other variables that account for some of the variance in work for EM services. Information about patient age, frailty and type of problem (new or old) will be recorded on the forms and the panel can consider the impact of these variables on the work/time relationship to make a decision about the classes of EM codes.

Timeframe. The panel will be convened in Winter 1989-90 and will present its recommendations to the Commission and the CPT Editorial Panel in Spring 1990. This timeframe will allow the revised EM codes to appear in the 1991 edition of CPT, well before the full implementation of the Medicare Fee Schedule.[31] The Commission will assign relative values to EM services using coding definitions developed by this panel and the results of a refined analysis of the relationship between work and time based on data from the completed Hsiao study and from the Commission's Visit Survey.

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[30] The log-diary form will record information about seven categories of EM services: review of records, history and physical examination, patient and/or family counseling, charting and dictation, contact with other providers, clinical contact with housestaff, scheduling procedures and admissions, and obtaining laboratory results.

[31] The new EM coding system will be implemented in the latter stage of the transition (see Chapter 8).

U.S. Department of Health and Human Services, Office of the Inspector General, *Problems with Coding of Physician Services: Medicare Part B*, Draft Report, Washington, DC, November 1988.

CHAPTER 4

SURGICAL GLOBAL SERVICES IN THE MEDICARE FEE SCHEDULE

RECOMMENDATION

Global payment for surgery should be based on the policy developed by the Commission for defining which services associated with an operation are to be included in the payment for the operation. This policy should be adopted by all Medicare carriers when the Medicare Fee Schedule is implemented.

Surgical services have traditionally been paid on the basis of a global fee that includes not only the operation, but also certain perioperative technical procedures[1] and evaluation and management services. Under the current Medicare system, however, the specific component services included in each global fee are not well defined. The American Medical Association's *Current Procedural Terminology* (CPT), which is used by the Health Care Financing Administration (HCFA) Common Procedure Coding System to describe physician services, does not provide clear definitions for surgical global services. In addition, and in accordance with the original intent of the Medicare program to accommodate differences in local practice, HCFA allows each carrier to define the specific components of each global service independently. As a result, carrier policies vary widely and surgical codes do not represent the same combination of services when used by different physicians in different parts of the country.

Variation in global service policies can be partially accommodated under the customary, prevailing and reasonable (CPR) system for determining physician payment. But variable global service policies would result in serious inequities if payment were based on a national resource-based relative value scale. Under the current system, the allowed charge for an operation could vary to reflect the global service policy in different carrier areas. With a national system, however, only one relative value would be assigned to each surgical code. This value would be clearly inequitable if it applied to different packages of component services entailing different resource costs in different parts of the country.

This chapter reviews carrier policies for surgical global services under the current Medicare program. It describes the consensus process that the Commission used to develop a standardized global service policy. It concludes with a discussion of each component of the policy and an explanation of how the policy will be used to calculate relative total work values for surgical services under the Medicare Fee Schedule.

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[1] Perioperative procedures are performed before or after an operation.

CURRENT CARRIER POLICIES FOR SURGICAL GLOBAL SERVICES

The Commission recently completed a survey of Part B carriers documenting the extensive variation that currently exists in Medicare global service policies.[2] In this survey, carriers were asked to indicate all of the component services they include in the global fee for four operations that are performed frequently in the Medicare population: total hip replacement (HIP), transurethral resection of the prostate (TURP), coronary artery bypass graft (CABG), and permanent pacemaker insertion (PACE).[3] All but one of the carriers responded to the survey and the information obtained accounts for 55 of the 56 Medicare carrier areas.[4]

Currently 44 different policies are used to implement payment for surgical global services in the Medicare program. Each carrier tends to be relatively consistent in its approach to different operations. But substantial variation exists among carriers in the services included in the global fee for any one operation. For example, in one carrier area, the fee for a TURP covers the basic operation, up to two weeks of postoperative hospital care, and, if required, correction of one specific surgical complication. In another, the fee covers the surgical consultation prior to the operation, up to three days of preoperative visits in the office and hospital, extensive intraoperative services, any of seven ancillary operations that may be performed at the time of the TURP, three months of postoperative visits in the hospital and office, and, if required, surgery for complications.[5]

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[2] The survey questionnaire was mailed to the 26 Blue Shield carriers and nine commercial carriers who administer Part B payment for the Medicare program.

[3] Two sources were used to generate the list of component services used in the questionnaire. A group of surgical consultants worked with the Commission staff to identify all services that a principal surgeon might provide in association with each of the four operations. In addition, data from the 1986 Part A and Part B claims files were used to identify all services performed within 90 days of these operations for which principal surgeons were allowed additional payment by Medicare.

[4] Carrier areas are usually states.

[5] Intraoperative services are performed during the operation. Preoperative services are performed before, and postoperative services are performed after the operation.

Table 4-1. Carrier Policies Regarding Inclusion of Preoperative Visits in the Surgical Global Service

INCLUDED VISITS	PERCENT OF 55 MEDICARE CARRIER AREAS			
	HIP	TURP	CABG	PACE
Hospital and Office	27	27	27	27
within 3 days of operation	11	16	16	13
more than 7 days preop	5	7	7	9
other	11	4	4	5
Hospital Only	26	29	33	29
within 3 days of operation	17	18	14	14
more than 7 days preop	4	6	11	7
other	5	5	8	8
No Preoperative Visits	47	44	40	44

Source: PPRC Medicare Carrier Survey.

This variation suggests a lack of consensus among carriers about the services that should be included in the surgical global fee. Carriers include different categories of component services in the surgical package. They also specify services differently within each category. The results of the survey are discussed briefly below.[6]

Visits and Consultations

Three types of evaluation and management (EM) services can be included in the global fee for operations: the initial consultation by the principal surgeon, preoperative visits, and postoperative visits. Currently the consultation is included in the global service in 32 to 42 percent of Medicare carrier areas, depending on the operation. In most of these areas it is included only if it is performed within a certain number of days before the operation or in an inpatient setting. The consultation is excluded from the global service in 56 to 64 percent of the carrier areas.

Preoperative visits are included in the global service in 53 to 60 percent of the carrier areas, depending on the operation. When they are included, however, the specific visits vary substantially by timeframe and by site (Table 4-1). Some carriers include preoperative visits provided in the hospital or in the office while others limit these visits to the hospital setting. Some include visits only in the immediate

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[6] The results of the Commission's Medicare Carrier Survey will be described in greater detail in a working paper to be published shortly after this report.

Table 4-2. Carrier Policies Regarding Inclusion of Postoperative Visits in the Surgical Global Service

	PERCENT OF 55 MEDICARE CARRIER AREAS			
INCLUDED VISITS	HIP	TURP	CABG	PACE
Hospital and Office	82	80	78	64
1 - 14 days postop	9	11	9	11
15 - 30	7	7	7	35
31 - 42	4	0	2	0
43 - 90	2	58	58	16
91 - 180	44	0	0	0
180 + days	16	4	2	2
Hospital Only	18	20	20	18
No Postoperative Visits	0	0	2	18

Source: PPRC Medicare Carrier Survey.

preoperative period, but others include visits over a longer period of time. Emergency room visits that occur prior to the operation are not usually considered part of the surgical global fee.

In 64 to 82 percent of the carrier areas, postoperative hospital and office visits are included in the surgical global service (Table 4-2). The specific timeframes vary, but 180 days is used most commonly for HIP, 90 days for TURP and CABG, and 30 days for PACE. These timeframes are identical to those used in the 1974 California Relative Value Study (CRVS). In one-third of the carrier areas, the same postoperative timeframe is applied to all operations.

Although EM services included in the global fee for any one operation vary in different carrier areas, each carrier includes similar EM services in its global fee for different operations. For example, if a carrier's policy for the HIP global service excludes the surgical consultation but includes three days of preoperative hospital visits and 180 days of hospital and office postoperative visits (the CRVS timeframe), that carrier will follow a similar policy for TURP and CABG.[7] The carrier may not, however, include similar EM services in its fee for PACE. Some carriers do not treat this operation as a global service.[8]

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[7] If a carrier uses a different postoperative timeframe for each operation, it usually follows the guidelines of the CRVS.

[8] In 18 percent of carrier areas, postoperative care is not included in the fee for PACE.

Table 4-3. Carrier Policies Regarding Inclusion of Technical Procedures in the Surgical Global Service

	PERCENT OF 55 MEDICARE CARRIER AREAS[a]			
	HIP	TURP	CABG	PACE
Diagnostic and Therapeutic Nonoperative Procedures				
All included	2	0	0	0
Some included	14	49	33	13
None included	80	47	63	83
Intraoperative Technical Procedures				
All included	4	7	7	18
Some included	85	89	75	70
None included	7	0	14	8
Ancillary Operations				
All included	0	5	2	*na*
Some included	0	84	58	*na*
None included	96	7	36	*na*

Source: PPRC Medicare Carrier Survey.

Note: [a] In 4 percent of the carrier areas, the technical component of the global service policy was under development at the time of the survey. Therefore, only 96 percent of the carrier areas are represented in this table.

Technical Procedures

Most carriers include intraoperative and perioperative technical procedures as well as EM services in their surgical global fees. But policies in different areas vary widely in terms of the specific diagnostic and therapeutic procedures, intraoperative services, and ancillary operations included in the global fee for each operation (Table 4-3). Technical services commonly performed in association with an operation tend to be included in the global fee more often than those that are not. For example, preoperative cystourethroscopy is performed frequently in patients who are scheduled for a TURP, and this procedure is included in the TURP global fee in 59 percent of carrier areas. Preoperative sigmoidoscopy is performed less often in this patient population and it is included in the global fee in only 14 percent of the areas.

But many carrier policies exclude common technical procedures from the global service and some exclude services that are a usual or necessary part of the primary operation. For example, in 73 percent of carrier areas, irrigation of a bladder tube is not considered part of the TURP global fee, and in 32 percent of the areas, a surgeon performing a CABG could bill and receive additional payment for inserting a chest tube intraoperatively. Other carrier policies include services that are performed infrequently or are unrelated to the primary operation, such as the removal of a ureteral stone at the time of a TURP.

Services Related to Complications

Carriers treat EM and technical services differently in their policies related to complications from surgery. All visits provided by the principal surgeon within the specified postoperative timeframe tend to be included in the global fee whether they are routine or related to complications. In more than two-thirds of carrier areas, the surgeon is not entitled to additional payment for postoperative visits that take place in the intensive care unit. In contrast, additional surgery and technical procedures required to treat complications are frequently excluded from the global service. Surgeons are currently allowed to bill and receive additional payment for these services in 41 to 68 percent of carrier areas, depending on the primary operation.

DEVELOPMENT OF A STANDARDIZED SURGICAL GLOBAL SERVICE POLICY

In its 1988 Report to Congress, the Commission recommended that codes for surgical global services be implemented uniformly under the Medicare Fee Schedule. This is necessary because an accurate relative value cannot be assigned to each global service unless the components included are delineated clearly. Moreover, each value will not be applied to the same package of component services in different parts of the country unless all Medicare carriers define the surgical global service in the same way.

With the unanimous agreement of a consensus panel made up of surgeons and carrier representatives, the Commission has now developed a policy that specifies which services are to be included in the global fee and which are to be paid separately. The consensus process and the standardized global service policy are described below.

The Consensus Process

In May 1988, nominations for members of a consensus panel were solicited from surgical specialty societies and organizations representing Part B carriers.[9] The Commission chose 38 panelists, including three representatives from each of the 11 specialties involved in the surgical care of Medicare patients and five representatives of Medicare carriers. To assure a broad range of perspectives, the Commission selected panelists from academic and private practice settings and from both urban and rural regions of the country.

Charge to the Panel. The Commission charged the panel with developing a policy consistent with the guidelines it set forth in its 1988 Report to Congress. It also asked for a policy that would meet certain operational requirements and would reconcile the needs of beneficiaries, surgeons and carriers.

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[9] The Commission also solicited nominations for beneficiary representatives from the American Association of Retired Persons (AARP). The AARP declined, citing the highly technical nature of the project.

In its 1988 Report, the Commission limited the application of the global service policy to operations and to the services of the principal surgeon.[10] It also prescribed that the value of each global service would be determined by adding the values of its component parts (weighted by the frequency with which they are used and the context in which they are performed) and that the principal surgeon would be allowed to submit additional bills for services not included in the global package if they are medically indicated and performed.

The Commission chose this pricing method because it makes the surgeon's total payment for caring for a patient independent of the component services included in the global fee. As an illustration, consider how this pricing method would apply to two global service policies for TURP, one that includes preoperative cystourethroscopy and one that does not. With the first policy, the value of the cystourethroscopy would be reflected in the global fee and the surgeon would not be allowed to submit an additional bill for performing this procedure.[11] With the second, the global fee would be proportionally lower, since it would not reflect the value of the cystourethroscopy, but the surgeon would receive additional payment if this procedure were indicated and performed. With either policy, the total payment that a surgeon would receive, on average, for performing a TURP and cystourethroscopy would be the same.

The panel's task was to develop a policy that would satisfy, to the greatest extent possible, the needs of beneficiaries, surgeons and carriers. Beneficiaries want a global service policy that will not compromise access to care or the provision of necessary services. Surgeons want one that does not limit clinical autonomy or create disincentives for physicians to care for patients with complex problems. Carriers want a policy that is administratively simple, verifiable, and consistent with the goals of cost containment. The panel attempted to reconcile these needs by making each component of the policy as acceptable as possible to all groups and by balancing different components to improve the acceptability of the policy as a whole.

The standardized policy is meant to foster uniform implementation of surgical global services under a fee schedule. Thus, the panel was charged with developing a policy that would be interpreted in the same way by the surgeons and carriers who would use it. Since the policy will be used as a blueprint to identify the specific component services that will be included in the global fee for each operation, the panel tested this requirement by asking its members to translate each policy option into specific component services for several operations. When the surgeons and carriers on the panel identified substantially different services, that policy option was rejected. Many common ways of describing services (for example, the "services expected for the average patient") were rejected for these reasons.

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[10] The Commission may convene additional panels at a later date to broaden the application of this concept.

[11] In determining the value of the TURP global service, the value of the cystourethroscopy would be weighted by the frequency with which it is performed in association with this operation.

The Structure of the Group Process. The consensus process was designed to maximize representation without sacrificing effective group process. A number of different decision-making techniques were used for this purpose.[12]

Telephone interviews. The process began in June 1988 with hour-long telephone interviews that identified the type of surgical global service preferred by each of the panelists and the reasons for their preferences.

First Delphi Questionnaire. The results of the telephone interviews were used to develop four preliminary policies that reflected the panel's broad range of views concerning the EM services, nonoperative technical procedures, and intraoperative services that could be included in the surgical global service. The panel was asked to critically evaluate each policy to see if it was clear and could be interpreted uniformly by surgeons and carriers. In addition, the panel was asked to identify the strengths and weaknesses of each policy in terms of its administrative simplicity, verifiability, potential for misuse or abuse, potential impact on clinical autonomy and flexibility, access to care by beneficiaries, equity among physicians, cost containment, and data retrieval. Members of the panel were also asked questions related to comorbidity, complications and concurrent care. All panelists completed the questionnaire. Shortly thereafter, they received a detailed summary of the full panel's responses as well as a report summarizing the preliminary results of the Commission's Carrier Survey.

First Meeting of the Subpanel. An eight member subpanel representing the full range of views and demographics of the larger panel then drafted a preliminary policy for surgical global services. At their meeting, the subpanel used the results of the first Delphi questionnaire to represent the views of the full panel, identify operational problems, and suggest starting points for discussion. The subpanel used the Commission's Carrier Survey as a source of information about current carrier practice.

Second Delphi Questionnaire. The second Delphi questionnaire included a summary of the policy developed by the subpanel and the reasoning behind it. It also consisted of tasks in which the members of the full panel were asked to review and rate each component of the draft policy, provide suggestions for improvement, and provide additional input regarding services for complications, which was an issue the subpanel was unable to resolve. All panelists completed the questionnaire, and were soon presented with a summary of the full panel's responses.

Second Meeting of the Subpanel. At their second meeting, the subpanel used the ratings and suggestions from the second Delphi questionnaire to refine the draft global service policy. A report describing the reasoning that led to their decisions was mailed to the full panel, which was asked to submit comments in writing.

Meeting of the Full Panel. The full panel met in November 1988. After a review of the subpanel's policy recommendation and a description of how the policy would be implemented and used to establish fees, the full panel discussed each component of the policy. It considered all written comments and suggestions and adopted several amendments to the policy. The amended global service policy was approved unanimously by the panel at this meeting.

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[12] The Commission designed the consensus process with the help of two consultants. David Gustafson, Ph.D., of the University of Wisconsin, participated in the initial phase of the project. David Helms, Ph.D., of the Alpha Center in Washington, D.C., participated in the later stages.

The Surgical Global Service Policy

Each component of the global service policy and the reasoning that led to the panel's decision is discussed below. The complete policy and a glossary of terms are presented in Appendix C.

Surgical Consultation. *The principal surgeon's evaluation of a patient for a new surgical problem is not included in the global service. The value of the consultation will not be included in the global fee and the surgeon will be allowed to bill for this service separately.*

There was strong consensus among the members of the panel to exclude the surgeon's initial evaluation of a patient from the global service. This service is provided before the decision for surgery is made, and the extent of the service--assessing the patient's problem(s), weighing options, counseling the patient and family, and rendering an opinion to the referring physician--varies substantially among patients undergoing the same operation.

Although the panel defined the surgeon's initial evaluation of a patient as a consultation, the operating surgeon is not currently allowed to bill for this service with a consultation code. This code is supposed to be used when a surgeon evaluates and renders an opinion about a patient at the request of another physician. A visit code is supposed to be used for a referral when a surgeon evaluates and then operates on a patient at the request of another physician. Since the work involved in evaluating and rendering an opinion about a patient does not depend on whether the surgeon later performs an operation, the panel recommended that the distinction between consultation and referral be eliminated and that the value of the two services in a resource-based scale be the same. They suggested that CPT modify the current definition of consultation or create a new category of code to cover this service (for example, "surgical evaluation" or "evaluation of a new patient problem").

As mentioned above, not all initial evaluations require the same amount of work. Although CPT distinguishes visits and consultations with different levels of service, the carrier representatives on the panel were concerned that surgeons (or their billing clerks) may not use these levels appropriately. Higher level codes seem to be used disproportionately and may not reflect the actual work involved. Since misuse may be due to ambiguity in the definitions of codes, the panel recommended that the levels of service in the new category of consultation code be defined more clearly and that physicians and carriers be provided with specific guidelines for their use. This should be accomplished by incorporating time in the definitions for levels of service (see Chapter 3).

Preoperative Visits. *All preoperative hospital visits provided by the principal surgeon on the day before and day of surgery (with the exception of the consultation) are included* *in the global service. Only the value of these preoperative visits will be included in the global fee. The surgeon will be allowed to bill for all other preoperative visits separately.*

There is no general agreement among Medicare carriers on the number or type of preoperative visits that should be included in the surgical global fee. Therefore, the panel considered the following options for this part of the policy: including all preoperative office and hospital visits, including only preoperative hospital visits, including only "routine" preoperative hospital visits, including preoperative visits limited by time, and excluding preoperative visits.

The final policy decision--to include all preoperative hospital visits on the day before and day of surgery--met many of the needs of the surgeons and carrier representatives on the panel. The policy is clear and easy to administer. It is also flexible with regard to nonsurgical management. Since the institution of prospective payment for hospitals, it is no longer routine for patients to be admitted more than one day prior to surgery. Patients with longer preoperative stays tend to have complex problems that require management not directly related to the operation. Thus, with this policy, patients undergoing routine surgery would be unlikely to receive additional bills for preoperative care. Since surgeons would be entitled to additional payment for more extensive preoperative management, sicker patients would be unlikely to have problems obtaining access to care. Since surgeons have limited control over hospital length of stay, abuse of this policy would be unlikely.

The panel considered three potential weaknesses with this policy. First, it could encourage surgeons to provide unnecessary preoperative office visits or submit additional bills for preoperative hospital "social" visits. Most members of the panel considered this unlikely, noting that the medical necessity of all visits should be documented in the chart. Second, the policy could be inequitable for surgeons who care for patients requiring intense preoperative management. But this risk is limited because the preoperative timeframe is short, and nonoperative invasive procedures are excluded from the global service. Finally, effective implementation would require carriers to identify bills for preoperative visits that are submitted separately from the claim for surgery. The carrier representatives on the panel considered this requirement to be administratively feasible.

Postoperative Visits. *All institutional and outpatient visits provided by the principal surgeon during the 90 days following the primary operation are included in the global service unless the visit is for a problem unrelated to the diagnosis for which surgery is performed. Postoperative evaluation and management services related to complications of surgery are included in the global service.*

Specialty societies will be asked to identify the number, site, duration, and intensity of visits typically provided by the principal surgeon in the 90 days following surgery for each operation. The value of these visits will be included in each global fee.

There is general agreement among Medicare carriers and surgeons that postoperative hospital and office visits should be included in the surgical global service. This type of policy reflects the accepted view that the surgeon is responsible for a patient's care until he or she is recovered from surgery.

But not all operations require the same amount of postoperative care. A global service policy could acknowledge this fact by assigning a specific postoperative timeframe to each operation. But such timeframes would be difficult to develop and institute. Surgeons on the panel did not interpret the "recovery time for the vast majority, average, or least complicated patient" uniformly for specific operations. Moreover, several panelists stated that physicians within their specialties disagree on postoperative timeframes for the operations they perform. Specific timeframes could be assigned using the guidelines in the California Relative Value Scale. This is the current policy of most Medicare carriers. But the CRVS is more than ten years old, and a number of specialties disagree with these timeframes for operations in their fields.

The panel suggested that it might be easier for surgeons to specify the number of postoperative visits typically provided in a given time period for each operation than to decide on a specific timeframe for each operation. For example, urologists might have difficulty deciding if four or 12 weeks is the more appropriate duration of postoperative care for a TURP, but they would be more likely to agree on the number of postoperative visits required for a typical patient in the 12 weeks following this operation.

The panel decided to use one postoperative timeframe for all operations and to ask the specialty societies to identify the number, site, duration, and intensity of visits typically provided by the principal surgeon in this period for each operation. This approach is simple to administer and appears to satisfy the operational requirements of a global service policy. In addition, since the number, site, duration, and intensity of postoperative visits used to calculate the fee would be specific to each operation, the surgeon's payment would reflect expected differences in postoperative care.

The panel chose 90 days as the common postoperative timeframe. Most patients have recovered from major surgery in 90 days, and this is the most common timeframe in the CRVS. This timeframe also seemed acceptable from the point of view of beneficiaries who would be unlikely to receive separate bills for routine postoperative visits with this policy. This would not be the case if the timeframe were shorter.

The panel excluded from the global service visits for a diagnosis unrelated to the operation. If a patient sees the surgeon for an unrelated problem in the 90 day postoperative period, the surgeon would be allowed to bill for the visit separately.

The panel decided to include postoperative evaluation and management services related to complications of surgery in the global fee. It did so for the following reasons:

- The principal surgeon has a responsibility to provide care until the patient is recovered from surgery. This responsibility is not diminished if the patient develops complications.
- The inclusion of postoperative visits for complications is consistent with the intent of a global service policy.

- A policy that would allow surgeons to bill separately for postoperative visits related to complications could be abused, leading to increased costs.

- This policy would encourage appropriate consultation and discourage surgeons from caring for problems outside their area of expertise.

- Under this policy, beneficiaries would not receive additional bills for visits related to complications.

- It would be difficult to institute a policy that would include postoperative visits for only some types of complications.

Some members of the panel suggested that this policy might not be equitable for surgeons who care for older patients with more complex conditions and that it might encourage surgeons to shunt patients to consultants, even if they had the skills to provide the patient's care themselves. This could lead to fragmentation of care, poor quality of care, and increased costs.

In response, other panel members pointed out that this policy covers only evaluation and management services related to complications. Since nonoperative technical procedures are excluded from the global service (see below), the surgeon would be allowed to bill separately for technical services that are required to manage complications. Moreover, if the patient population undergoing an operation becomes older or more frail, the typical postoperative care associated with that operation would become more intense. In such a case, the specialty societies could provide the Commission with new information that would update the number, site, duration, and/or intensity of postoperative visits that are used to calculate the global fee. The panel also noted that the decision for consultation depends on medical necessity, availability, and legal considerations as well as reimbursement. For this reason, panel members thought it unlikely that the surgical global service policy would substantially increase the use of consultants.

Ultimately, however, a "severity index" may have to be developed to modify global fees for surgeons who practice at tertiary centers and routinely care for patients with complex conditions. This type of modifier is currently under consideration for hospital payment and will be studied further by the Commission with regard to physician payment. Until an operational "severity index" is developed, surgeons would continue to be allowed to submit documentation to request additional payment for extraordinary services.

Nonoperative Procedures. *All technical procedures not usually performed at the time of surgery are excluded from the global service. (Evaluation and management services are not covered by this part of the policy).*

The only exceptions to this rule are dressing changes, local incisional care, and removal of operative packs; removal of cutaneous sutures, staples, lines, wires, tubes, drains, casts, and splints; insertion, irrigation and removal of urinary catheters, routine peripheral intravenous lines, and nasogastric and rectal tubes; and change and removal of tracheostomy tubes. The value of all other technical procedures will not be included *in the global fee. The surgeon will be allowed to bill for additional indicated procedures separately.*

Medicare carriers differ substantially with regard to the nonoperative technical procedures that are included in the surgical global fee. Although the panel considered several options that would include these services, none of them satisfied the operational requirements of a global service policy. For example, surgeons on the panel did not translate the "nonoperative technical procedures typically performed by the principal surgeon on the average patient" into the same list of procedures for any given operation in their field.

The panel considered including in the global fee all of the nonoperative technical procedures performed by the principal surgeon within the global service timeframe. This policy would be easy to implement because surgeons would not be allowed to submit any additional bills in this category. But it would be difficult for surgeons or specialty societies to identify a comprehensive list of these procedures for each operation or to determine the frequency with which they are performed. For this reason, it would be difficult to use this policy to calculate equitable values.

The panel concluded that the only feasible option is to exclude most nonoperative technical procedures from the global service, which is the current practice of many Medicare carriers. This policy was acceptable to panel members because it is clear, verifiable, and easily accommodates changes in surgical practice. Moreover, implementing this policy would produce billing records that could be used in the future to identify specific procedures associated with each operation.[13]

Under this policy, surgeons would not be allowed to submit additional bills for every nonoperative technical procedure. The global fee would encompass a group of generic procedures associated with most operations; this list is included in the policy. The global fee would also encompass technical procedures usually performed at the time of surgery. In other words, a surgeon would not be entitled to additional payment for performing a technical procedure preoperatively or postoperatively when it should have been performed intraoperatively. The panel included these provisions to reduce paperwork, the potential for gaming, and any incentives surgeons might have to perform unnecessary procedures.

Intraoperative Services. *All intraoperative services performed by the principal surgeon that are a usual and necessary part of the primary operation are included in the global service. Unusual services related to the primary operation, concurrent operations (operations performed at the same time as the primary operation but for another diagnosis), and reoperations for complications are excluded. The value of these additional intraoperative services will not be included in the global fee; if indicated and performed, the surgeon will be allowed to bill for them separately.*

Additional operations performed at the time of the primary operation but not encompassed by the CPT code for the primary operation will be reimbursed at rates less than their full global fee. The reduction in fee will reflect the savings in resource costs

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[13] Thus, the policy could be modified in the future when better data are available.

that is achieved when two operations are performed through the same incision or at the same time and when postoperative care is provided concurrently.

Staged operations and reoperations for complications performed within 90 days of the primary operation will be reimbursed at rates less than the full global fee to reflect the savings in resource costs achieved when postoperative care is provided concurrently.

Although the primary operation is always included in a surgical global fee, Medicare carriers do not agree on the inclusion of specific intraoperative procedures related to the primary operation, concurrent operations, or reoperation for complications. The panel developed a policy that would include all intraoperative services performed by the principal surgeon that are a usual and necessary part of the operation. This policy reflects current surgical practice and accurately captures the intraoperative services encompassed by each surgical code in CPT.

This policy would make it easier for carriers to detect misuse and abuse of global service codes. The most common current problem in this regard is "intraoperative double billing." This term refers to a surgeon (or billing clerk) submitting one bill for a global service and additional bills for intraoperative services that are included in the global fee.[14] Specialty societies will work with the Commission to develop a standardized list of the "usual and necessary" intraoperative services for each operation. This information, which will be updated as necessary to reflect changes in surgical practice, will be made available to carriers to provide them with an additional tool for editing claims.

The global service policy would entitle surgeons to additional reimbursement for multiple, bilateral, and staged operations not encompassed by the code for the primary operation. But the global fee for these additional operations would be reduced to reflect savings in resource costs achieved when two operations are performed through the same incision or at the same time and when postoperative care is provided concurrently.

The policy would also entitle surgeons to additional reimbursement for reoperation related to complications. The panel's decision was based on current Medicare carrier practice and was supported for the following reasons:

- Surgeons should receive adequate reimbursement for services that entail a substantial amount of work.
- Reoperation rates vary widely, and it would be difficult to incorporate accurate data about the frequency of reoperation in the calculations for each global fee.
- With the expected reduction in surgical fees from the Medicare Fee Schedule, surgeons are becoming less comfortable with the concept of averaging.

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[14] Under the Medicare program, the surgeon is not allowed to submit duplicate bills for the global service and its component services to the patient or to Medicare.

* o Abuse would be unlikely with this policy since surgeons would not create complications to obtain additional payment.

- This policy would facilitate the monitoring of reoperation rates among surgeons.
- It would be difficult to institute a policy that would include reoperation for only some types of complications.

Shared and Concurrent Care. *Policies for shared and concurrent care are needed to account for circumstances when physicians other than the principal surgeon participate in the care of a surgical patient. These policies allow the global payment to be divided among two physicians who jointly provide a surgical global service, and they allow payment to a physician other than the principal surgeon who performs a necessary consultation. These policies are not intended to encourage or condone "fee-splitting".*

Shared Care. *When a physician other than the principal surgeon provides a service included in the global package, the principal surgeon's fee will be reduced. This policy will apply when the operating surgeon does not provide complete postoperative care for a patient (most commonly for geographic reasons). The reduction in payment will be based on the resource costs of the postoperative hospital and/or office visits used to calculate the global fee.*

Concurrent Care. *When a physician other than the principal surgeon provides a service not included in the global package, the principal surgeon's fee will not be reduced. This policy will apply when services are provided by an assistant surgeon, cosurgeon, or consultant. The concurrent care must be documented as medically necessary.*

The policy for shared and concurrent care is consistent with current Medicare carrier practice and satisfies the needs and concerns expressed by the surgeons and carrier representatives on the panel. The members of the panel supported this policy because it:

- prevents double billing;
- accommodates cases in which surgery is performed at a tertiary center and postoperative care is provided locally;
- accommodates cases in which surgery is performed by a visiting surgeon;
- accommodates cases that involve cross-coverage among physicians;
- does not discourage necessary consultation; and
- provides data that can be used to keep track of the extent of shared and concurrent care.

When a physician other than the principal surgeon provides postoperative care for a patient, that physician and the principal surgeon receive adjusted payment by submitting bills with modifiers. Currently, the principal surgeon uses CPT modifier

54 to request payment for providing surgical care and the second physician uses CPT modifier 55 to request payment for providing postoperative care.

Since the operating surgeon usually provides inpatient postoperative care and the second physician provides outpatient postoperative care, the panel suggested that CPT introduce two new modifiers. The principal surgeon could use modifier "54A" to request payment for the operation and all hospital postoperative visits, and the second physician could use modifier "55A" to request payment for postoperative visits in the office.[15] Since the specialty societies will be identifying the number of hospital and office visits typically provided by the principal surgeon following each operation, an accurate adjustment of the global fee could be made for each of these modifiers. Unusual arrangements not captured by these modifiers could be settled on a case-to-case basis.

The policy for shared and concurrent care should not be misinterpreted as an endorsement of legalized "fee-splitting". In cases where more than one physician participates in the care of a surgical patient, the principal surgeon should make advance arrangements for competent postoperative care, and informed consent about the arrangement should be obtained from the patient.

Summary

The standardized global service consists of all preoperative hospital visits provided by the principal surgeon on the day before and day of surgery, all intraoperative services performed by the principal surgeon that are a usual and necessary part of the operation, certain minor perioperative procedures, and all institutional and outpatient visits related to the operation provided in the 90 days following surgery. The surgical consultation, most pre- and postoperative technical procedures, unusual intraoperative services, and additional operations not encompassed by the CPT code for the primary operation are excluded.

IMPLEMENTATION OF THE STANDARDIZED SURGICAL GLOBAL SERVICE POLICY

The standardized global service policy will be used to calculate relative total work values and implement payment for surgical services under the Medicare Fee Schedule.[16] The policy will be applied to operations performed in inpatient and ambulatory settings. It will not be applied to nonincisional procedures (for example, cystourethroscopy and gastrointestinal endoscopy) or to invasive procedures that are frequently performed by nonsurgeons (such as coronary angioplasty).[17]

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[15] The modifiers would be assigned appropriate numbers by CPT. "54A" and "55A" are used in the text for illustrative purposes only.

[16] The standardized policy will be implemented in the latter stage of the transition (see Chapter 8).

[17] As noted earlier, additional panels may be convened at a later date to broaden the application of the global concept to these procedures.

The definition of the surgical global service in the Hsiao study is narrower than that of the standardized policy.[18] [19] Therefore, the total work values for surgical services from this study would, if used without modification, underestimate the total work involved in the standardized global service. The Commission will calculate total work values that more accurately reflect the new policy by identifying the specific components (preoperative visits, usual and necessary intraoperative services, and postoperative visits) included in each surgical global service and then adding the work values of these component parts. It will not be necessary to itemize intraoperative services for this purpose since the values of intraservice work for surgical services in the Hsiao study reflect the typical intraoperative services. However, it will be necessary to obtain specific information about the evaluation and management services associated with each operation.

Surgical specialty societies will play an important role in this process by identifying the number, duration, and intensity of preoperative hospital visits typically provided by the principal surgeon on the day before and day of surgery, and the number, site, duration, and intensity of postoperative institutional and outpatient visits typically provided by the principal surgeon in the 90 days following surgery for each operation in their field. To be sure that this information is as accurate as possible, the Commission will compare it with more objective sources of data (for example, hospital data about average length of stay) and will review it with the help of outside consultants. The Commission will also resolve any interspecialty differences that may arise.

The total work of each global service will be calculated by adding the intraservice work of the surgical service, the work involved in scrubbing and dressing, and the total work of each of the pre- and postoperative visits. The Commission has recommended that the codes for EM services be modified by incorporating time in the definitions for levels of service (see Chapter 3). The total work values for the visits included in the surgical global service will be determined on the basis of this new coding system.

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[18] The hospital-based surgical global service in the Hsiao study included the hospital admission work-up and hospital visits before the operation; dressing, scrubbing and waiting before the operation; the primary operation; immediate postoperative care including dictating operative notes, talking with the family and other physicians, writing orders, and the evaluation of the patient in the recovery room; postoperative follow-up on the day of surgery, and postoperative hospital visits. Postoperative office visits were excluded. The global service for surgery in an ambulatory setting included the preoperative work-up; dressing, scrubbing, and waiting before the operation; the primary operation; and postoperative care on the day of surgery. Postoperative care after the day of surgery was excluded.

[19] The definition used in the Hsiao study is also narrower than most carriers' definitions today. The Commission's simulations included in this report have adjusted for this. The adjustment reduced the extent to which payments to surgeons would be reduced under the fee schedule when compared to estimates published by Hsiao and earlier ones from the Commission.

CHAPTER 5

PRACTICE COSTS

The costs of nonphysician inputs to physician services, usually referred to as practice costs, represent about 48 percent of the average physician's total revenue (Gonzalez and Emmons, 1988). The remaining 52 percent of revenue pays for the physician's inputs--primarily the physician's own time and effort, or work. Chapters 2, 3, and 4 have analyzed the resource costs of physician work and have reviewed the methodology used in the Hsiao study to quantify physician work.[1] This chapter discusses the incorporation of practice costs into the relative value scale (RVS).

RECOMMENDATIONS

Practice costs (expenses for nonphysician inputs) should be incorporated into the RVS through an additive formula.

To the degree that it is technically feasible, practice cost factors used in the RVS should apply to categories of services rather than specialties.

The RVS should not include an additional factor for the opportunity costs of specialty training.

Costs of professional liability insurance (PLI) should be separated from other practice costs. They could be integrated into the RVS through a separate practice cost factor or reimbursed directly to physicians.

Typically, practice costs include the salaries of nurses, technicians and receptionists, and the costs of office space, equipment, medical supplies, administrative expenses and liability insurance. Physicians often require different mixes of these nonphysician inputs in each of their practice settings and for different services. For example, the cost to a physician of performing an endoscopic examination in the office is higher than in a hospital setting where the hospital generally provides the equipment and supplies. The practice costs of a consultation will also be different from those of an electrocardiogram.

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[1] "Physician work" refers to the general concept of the physician's input to a medical service. "Total work" refers to the specific measure originally developed by Hsiao et al. to create a relative scale of physician work.

In the past, most analyses of practice costs have been performed on a specialty-specific basis on the assumption that specialty status was the best available indicator of relative practice costs of individual services. But there is considerable variation in practice costs across services that is not captured by specialty. Other analytical approaches may more accurately reflect the distribution of practice costs across services. Equation (1) is an example of an approach to integrating practice costs into an RVS that permits explicit estimation of practice costs for each service and variation in the ratio of physician work to practice costs:

$$\text{Fee} = (TW_i * CF_1) + (PC_i * CF_2) + M_{is} \qquad (1)$$

where

TW_i = total work (the physician's own direct input) for service i,
CF_1 = monetary conversion factor to convert total work into dollars,
PC_i = dollars of practice costs associated with providing service i,
CF_2 = an index to adjust practice costs (e.g. for geographic differences in input prices), and
M_{is} = dollars of the professional liability insurance (PLI) premium allocated to service i for specialty s.

In this equation PLI costs are specified separately from other costs because insurers usually tie premiums explicitly to the specialty rather than the mix of services provided.

The additive specification of this model permits practice costs attributed to a service to be adjusted easily to account for geographic differences or to update fees in accordance with changing cost experience. Unlike a multiplicative formulation (like that used in the Hsiao study) it does not require that practice costs be determined as a function of the physician work for each service. Given an ideal data collection system, nonphysician inputs and their costs could be linked directly to each service provided. While the model described in equation (1) cannot be achieved in practice, the goal of practice cost payment approaches is to approximate it.

This chapter examines approaches to practice cost allocation that are feasible at this time. It begins with a review of the specialty-specific approach used in the Hsiao study and suggests improvements to reduce its biggest disadvantages. It then describes the Commission's approach to the payment of practice costs on the basis of service categories. The chapter concludes with an outline of options for the payment of professional liability insurance (PLI) premiums by Medicare.

THE HSIAO APPROACH

The Hsiao model was designed to develop an RVS incorporating physician work, specialty training costs and practice costs. In estimating practice costs, the Hsiao study does not attempt to allocate nonphysician inputs to specific services or to groups of similar services. Instead, it proposes a multiplicative specialty-specific model for the allocation of these costs. This model allocates practice costs within a specialty in direct proportion to the total work of a service. In general, Hsiao's model is given by

$$RBRV_{is} = TW_i\,(1+RPC_s)\,(1+AST_s) \qquad (2)$$

where

$RBRV_{is}$ = resource based relative value units for service i provided by specialty s,
TW_i = total work of service i,
RPC = an index of relative specialty practice costs, and RPC_s is the factor for specialty s,
AST = an index of the amortized value of the opportunity costs of specialty training, and AST_s is the factor for specialty s.

A practice cost factor for each specialty was calculated as the ratio of practice costs to gross income. A relative index (RPC) was constructed from the specialty cost ratios, and a similar relative index (AST) was constructed from the amortized costs of specialty training for each specialty.[2] The product of Hsiao's relative work scale and these two indices produces a relative value scale, which must then be multiplied by a monetary conversion factor to produce a fee schedule.

The Hsiao model is subject to two basic limitations. First, it allocates practice costs exclusively on the basis of specialty status. This means that two services will receive the same percentage allocation for practice costs, regardless of incurred costs, if performed by physicians in the same specialty even though some services require much more nonphysician labor and capital equipment relative to physician work than others. It also means that physicians in different specialties who perform the same service will receive different payments.

Some of these differences across specialties may stem from the distortions of the current payment system. Physicians in specialties in which current fees are very high may provide care in more luxurious settings, which entail higher practice costs. Allocating practice costs on the basis of specialty status alone violates the basic principle of a resource-based RVS, which is that relative payments should reflect relative costs incurred by efficient physicians.

The second limitation is that the model imposes a rigid relationship between the valuation of the physician's work and practice costs. Specifically, when the valuation of physician work for a service changes, a comparable percentage change in the practice costs allocated to that service is implied. But practice costs would not be expected to change as a result of a change in the valuation of the physician work. For example, the costs of nurses' time and medical supplies do not change just because the physician is to be paid less (or more) for the total work of an endoscopy than he is now.

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[2] The Commission has chosen not to include training costs in its practice cost model, as is discussed below.

A distortion in relative values results when the valuation of physicians' work is modified and the ratio of practice costs to the fee[3] does not change. The distortion in relative values would amplify the changes in physician charges if the RVS were implemented. For example, consider an operation for which the current approved charge is $1,000. Of this amount, suppose $400 now goes for practice costs and $600 goes to the physician. Now assume that under the resource-based approach, physician work is valued at $450 instead of $600. In this case, the Hsiao approach would also reduce the practice costs to be allocated to the service by 25 percent, so that the fee would fall to $750. But practice costs would not have been affected by changing the valuation (but not the amount) of the physician's work. The fee should fall to only $850 ($450 for the physician work and $400 for practice costs). The formula would amplify the reduction in payment from 15 percent to 25 percent. If practice costs on average accounted for 48 percent of the revenues of physicians in a specialty, changes in relative values would be inadvertently magnified, on average, by a factor of 1.92 (1/(1 - 0.48)).

In their published work, Hsiao et al. implicitly made the assumption that the ratio of practice costs to total revenue by specialty would not change if a new RVS were used for paying physicians. This caused errors in the calculated relative values and fees in their simulated fee schedule. For example, in Table 5 of the article presenting the simulation of the fee schedule based on Hsiao's relative values (Hsiao et al., 1988), the charge for a coronary artery bypass is $1,348 compared to the current mean charge of $3,853. However, in another paper (Becker et al., 1988) the ratio of practice costs to total revenue for thoracic surgeons is estimated to be 43.1 percent. This implies that the portion of the current charge that covers practice costs alone is about $1,660, more than the total payment simulated for the RBRVS.

THE COMMISSION'S APPROACH

As an alternative to the approach used by Hsiao, the Commission is developing an additive, service-based cost allocation model that is similar to that presented in equation (1). This section first presents a simple interim approach that would eliminate the most serious problems with the Hsiao approach. It then discusses planned refinements and improvements to the interim model.

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[3] The value of physician work plus practice costs is equal to the fee.

The Basic Model

For the interim, the Commission has developed an additive model that uses specialty-specific practice cost factors. This model was used in the simulations described in Chapter 9 and could be used to develop relative values for a transitional stage of the Medicare Fee Schedule (Chapter 8). The model is summarized in equation (3):

$$RV_{is} = [TW_i * CF_1] + [PC_{is} * CF_2] \qquad (3)$$

where

TW_i is the total work for service i,
CF_1 is the conversion factor for total work,
PC_{is} is the practice cost amount in dollars for service i delivered by specialty s, and
CF_2 is the index to adjust practice costs.

The practice cost for service i in specialty s (PC_{is}) is calculated by multiplying the specialty-specific practice cost percentage for specialty s (practice costs divided by total revenue) by the average Medicare allowed charge for the service.[4] The product is the amount to be allocated to practice costs for that service performed by specialty s. The total amount in dollars allocated to practice costs, for all physician services in the system, is calculated by adding together the practice costs for all services provided.[5]

Subtracting this amount from the budget-neutral amount for physicians' services determines the amount available to pay for physician work. The conversion factor for physician work is calculated by dividing the available amount to pay for physician work by the sum of total work.

The additional specialty training (AST) factor does not appear in this model. Use of a training factor could constitute double counting because services requiring additional specialty training tend to be rated by physicians as requiring more work per unit time.[6] It would also violate the principle that physicians should be paid the same when the service is the same.

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[4] The allowed charge is the approved amount for the service using the CPR method of payment. It includes the actual amount paid by Medicare and the beneficiary's coinsurance but not any extra or balance billing. Examples of practice cost percentages (by specialty) are presented in Appendix D, Table D-1.

[5] For this discussion, the practice cost index adjustment is assumed to equal 1.0. If fee schedule amounts are to be calibrated to achieve total outlays less than the budget neutral amount, a decision would have to be made concerning whether all of the shortfall should come from the conversion factor for physician work or whether some should come from the conversion factor for practice costs.

[6] The higher work ratings for specialty services reflect the greater skill and judgment involved in the provision of those services. In turn, these higher levels of skill and judgment reflect the physician's more extensive training, which are already counted in the estimates of total work.

The additive specification of the basic model allows the ratio between the valuation of physician work and practice costs to vary. In other words, changes in the valuation of physician work need not affect the allocation of practice costs. This model avoids the redistribution of practice cost payments forced by the Hsiao model. It also provides substantial flexibility. For example, a geographic multiplier could be applied to practice costs without affecting the value of the physician work component, an objective that would be difficult to accomplish with a multiplicative model.

The basic model also has several weaknesses. First, practice cost payments are still based on aggregate, specialty-specific, cost-to-revenue ratios. This could lead to paying different amounts for the same service to physicians in different specialties. This can be avoided by using a weighted average of the practice cost factors for those specialties providing a specific service in common. Second, practice costs allocated to individual services within a specialty depend in part on allowed charges under CPR. To the extent that the CPR method has distorted relative values within a specialty, practice cost components will be distorted.

Refinements to the Basic Approach

The Commission plans to improve this model and complete this work before full implementation of the Medicare Fee Schedule. Using detailed data on practice costs, cost allocation methods can help apportion practice costs to services more accurately. The remainder of this section addresses planned refinements to the basic model.

The Commission's goal is to calculate and assign to specific services or to groups of similar services the costs that are incurred by physicians in providing them. As a first step, services that are relatively homogeneous with respect to nonphysician inputs will be grouped into clusters of services. The results of analysis of the cost structure of physician practices will then be used to allocate total practice costs among the service clusters. Then, practice costs in each cluster will be apportioned to individual services on the basis of the amount of physician work or some other variable.[7]

At present, 32 service clusters based on eight types of service and four locations of service have been defined for exploratory study.[8] Type and location were selected as classification variables for several reasons. First, type and location often imply whether certain types of inputs will be employed in providing the service. For example, certain tests and procedures involve the use of capital equipment, and inpatient services generally do not require the use of office medical supplies.

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[7] Other variables that might be used to apportion costs include total patient contacts or physician time.

[8] Appendix Table D-3 displays the distribution of total work units among the 32 service clusters.

Second, information on type and location is available on every Medicare claim from the procedure and place-of-service codes.

The four location classifications have been defined as follows: office, inpatient hospital, outpatient (outpatient hospital or ambulatory surgical center), and "other," which includes services provided in the home, skilled nursing facilities, other nursing homes and hospices.

The development of meaningful service classifications is more difficult because of the large number and variety of medical services, the subjectivity of allocating certain costs, and data limitations. The goal is to separate services into groups that are relatively homogeneous with respect to inputs. At present, the eight service types that have been defined are: visits and consultations, mental health services, diagnostic tests and procedures, gastroenterological services, ophthalmological services, cardiovascular services, radiology services, and surgery.[9]

National estimates of the eight components of practice costs listed below have been obtained from the Commission's Survey of Physicians:

- office space, including rent, utilities, etc.,
- non-medical supplies, including office furniture,
- medical supplies,
- medical equipment,
- clerical labor, including secretaries, receptionists,
- ancillary (nonphysician) labor, including nurses and lab technicians,
- billing and other management expenses, and
- professional liability insurance.

Cost component proportions have been calculated by dividing each component by total practice costs. (See Appendix Table D-2.) These components will be further refined using data from other sources such as the forthcoming HCFA physician survey, the AMA Socioeconomic Monitoring System, and the Medical Group Management Association Cost and Production Survey.

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[9] A list of CPT codes describing these services is provided in Appendix D. Although several of these clusters parallel common specialty designations, specialty differentials will not result because payments would not be directly dependent on the relative practice cost/net income ratios of specialists. Further, practice cost payments for the same service would be the same for any physician, irrespective of specialty.

Cost Allocation Rules. Allocating practice cost proportions across services is a complex process because amount and type of nonphysician inputs vary substantially among services. The easiest costs to allocate are those that can be tied to specific types and locations of services. For example, diagnostic test supplies can be allocated to office-based diagnostic test services. Some costs, such as the costs of billing, can simply be allocated to all services. However, the allocation of most costs is more complicated.

The costs of inputs that are used for a variety of different services (common costs) are not easily allocated to specific groups of services. For example, a surgeon's office is a common cost, since the surgeon needs the office to see patients, to do administrative work and to plan patients' care. But it is not clear to what extent the cost of the office should be allocated to inpatient surgery as opposed to office visits. Costs can be allocated either by the physician work generated at each site, the time spent, or the number of patients seen. None of these allocation rules is necessarily the best one, and each would result in a somewhat different allocation of costs.

One option is to allocate costs sequentially. The order of the allocation of costs might be from those that can be most specifically tied to particular services to those that cannot be tied to specific services. After the first cost component is allocated, the next would be allocated based on the distribution of physician work plus the costs already allocated, in a manner similar to a "step down" accounting process.[10]

The logic of this sequential approach can be seen in the following example. Once the costs of diagnostic equipment are allocated to diagnostic services, the diagnostic service clusters will contain the resource costs of physician total work for those services as well as equipment costs. Some portion of the costs of the office space must also be allocated to diagnostic testing. This allocation might be in direct proportion to the values of total work plus previously allocated equipment costs.

In the same way, personnel costs might be allocated in two steps: first for clinical and then for non-clinical personnel. Since clinical personnel are more closely tied to actual service delivery, the costs of clinical personnel would be allocated first. The initial allocation of clinical personnel would be between office and non-office locations. Since clinical personnel are primarily office inputs, the bulk of the costs of those personnel should be assigned to office services.

However, non-clinical personnel provide a variety of services which extend beyond the office, such as administrative support. Therefore, it may be appropriate to spread the costs of nonclinical personnel across both office and non-office cells on the basis of the aggregate costs allocated to each cell. Thus, the allocation of nonclinical personnel costs would be in part dependent on the allocation of clinical personnel costs.

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[10] This method has been widely used in hospital cost accounting (Young, 1984).

Future Issues. A number of additional issues in practice cost allocation are being studied. These include whether the construction of more narrowly defined service clusters is appropriate, whether individual specialties should be combined into specialty groupings, and the need for more detailed data on input mixes used by physicians.

The cost allocation process is most appropriate if services within each cluster require comparable mixes of practice inputs. If services are heterogeneous, use of more narrowly defined clusters would reduce intra-cluster variation in resource costs. However, limitations of survey data may prevent creation of such clusters--particularly for some equipment-intensive services. In order to construct more homogenous groupings, it will be necessary to obtain advice from physicians and manufacturers of medical equipment concerning the costs of these services.

Better data on the inputs used to provide specific services would make the definitions of service clusters more precise. With additional detailed cost information and data on input mixes, it would be possible to calculate the approximate resource costs of nonphysician inputs for many well-defined service clusters.

ALLOCATING THE COSTS OF PROFESSIONAL LIABILITY INSURANCE IN THE MFS

Professional liability insurance (PLI) costs are a unique and important practice cost component. They are a relatively large expense, vary dramatically by specialty and location (Posner, 1986), and have been increasing rapidly.[11] The economics of PLI are also different from other practice costs. While the markets for other nonphysician inputs, such as office space, are fairly competitive, the market for PLI is often a seller's market, characterized by little physician choice (Posner, 1986). Liability insurance is also a fixed cost that must be paid regardless of practice volume.

The Commission is particularly interested in the liability issue for two reasons. First, because of the wide variation in PLI premiums by specialty and area, and because of the differences between the area definitions of PLI carriers and Medicare, it may be necessary to treat PLI costs as a separate payment in order to compensate physicians fairly and accurately. Second, both physicians and patients are concerned about the effects of the liability issue on access, quality of care, and the doctor-patient relationship, particularly during periods of large changes in insurance rates or coverage availability. For these reasons, the Commission has decided to study the professional liability issue separately from other practice cost issues, and to recommend that payments for liability insurance premiums be made separately from other practice costs.

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[11] Malpractice expenditures increased by 17.2 percent between 1986 and 1987 according to published data from the AMA Socioeconomic Monitoring System.

Two options are available for making separate liability insurance payments to physicians. Under one option, a percentage markup (a PLI cost factor) would be added to each fee in proportion to the size of the fee. A second option would be to pay each physician a lump sum amount each year equal to the proportion of the total revenue that is accounted for by Medicare beneficiaries, multiplied by his annual premium.[12] This section will discuss both options. After further study, the Commission will recommend a particular method.

Liability Insurance Cost Factors

One way to make separate payments for liability premiums is to add a percentage amount to each billed service based on the liability insurance risk classes in each state. This could be done by assigning physicians (for example, thoracic surgeons) to a risk class, or by linking types of services, such as thoracic surgery procedures, to a risk class.

In general, insurers set PLI premiums on the basis of risk classes associated with physician specialty and subspecialty. Individual physicians are grouped into classes depending on their specialty and whether they perform certain procedures, such as obstetrics or open-heart procedures. A PLI percentage markup would be based on the average premium paid by all physicians in the same risk class in the same state.

Alternatively, since physician liability risk tends to be associated with a particular group of services performed by each specialty, the services themselves could be assigned to risk classes, and a percentage could be added to each service based on the risk class of the service, rather than the risk class of the physician.

Conceptually, the assignment of costs based on service risk classes is closer to the service-related payment approach discussed in the previous section. Ordinarily, the Commission would support a service-based approach as consistent with its position that physicians performing the same service should be paid the same regardless of specialty. But the unique characteristics of PLI costs described above have led the Commission to consider other approaches.

Service-Specific. Since liability risk tends to be associated with particular services performed by each specialty, PLI costs could be assigned to services on the basis of the liability risk of the services performed, rather than the riskiness of the physician's specialty. Using panels of physicians and other health policy or insurance experts, in combination with analysis of claims data, all services could be assigned to risk classes.

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[12] One detail to be resolved concerns experience-rated policies, often used by physician-owned insurers (Task Force on Medical Liability and Malpractice, 1987). These policies consider prior liability claims and may impose surcharges.

Once services are assigned to risk classes, a national relative PLI cost index could be calculated in two steps. First, using survey data, the national average fraction of total physician revenues paid by physicians for PLI premiums could be estimated. Using this information, a factor could be calculated that would be the mean national PLI multiplier.

Next, data could be obtained from each state on the average annual premium for each risk class for policies with equivalent coverages. These rates could be transformed into a single relative index covering all states and risk classes. This index could be used as a multiplier for the national average PLI premium percentage. For example, if the mean premium in a class/area were 10 percent higher than the national mean, the PLI factor would be 10 percent higher as well.

Each service in a risk class or state above the mean would be allocated a larger-than-average malpractice payment. Services below the mean would receive a smaller allocation. For example, coronary angioplasty might be assigned to a risk class that is 80 percent above the national mean. If the fee were $1,000 and the national mean percentage were 5 percent, the PLI factor in this case would be 9 percent or $90.

The main advantage of this approach is that PLI costs would be assigned as closely as possible to risky services, rather than to risky specialties. Thus, if a surgeon did not perform high-risk surgery, he or she would not be reimbursed at a rate to compensate for the high-risk surgery PLI premium--and in an ideal world, would not pay the higher premium. This is consistent with the service-related approach to practice costs.

But there are several limitations of this method. First, even if actual liability risk is linked to services rather than specialties, PLI carriers base their rates primarily on specialty status. Under this approach, physicians in high risk specialties performing no high risk procedures would have to pay the higher premium, and would be inadequately reimbursed. Second, payments under this approach are linked to total revenues. Thus, if physicians in the same liability risk class provide services that generate different revenues, their reimbursements would differ, even if all of the services they provide are in the same risk class.

A third problem is that placing services into risk classes may be difficult. Placement of physicians into risk classes has already been done by states and/or insurance carriers unambiguously. On the other hand, assigning services to risk classes may be a considerable undertaking, particularly for services that are performed by several different specialties. This problem would be exacerbated by variations in insurance carriers' risk class definitions and rate structures. Further, there may be differences in liability exposure for physicians in different specialties performing the same service.[13] Special adjustments might be necessary for such situations, increasing the complexity of the system.

Physician-Specific. Currently, physicians are assigned to risk classes on the basis of their specialty and/or the types of services they provide.[14] Similar to the process described above, a national relative PLI scale could be calculated and tied to the mean national PLI premium percentage. Given data on a physician's state and risk class, each billed service could be adjusted by a PLI factor. Physicians in states/risk classes above the national mean would receive a larger percentage, and those below the mean would receive a smaller percentage.

The main advantage of this approach is that physicians would be paid on the basis of existing risk class and premium structures, rather than service-linked risk classes. Physicians who must pay high premiums would receive a higher PLI adjustment, regardless of whether they perform high risk procedures. This approach is more likely to achieve the objective of paying physicians for the costs they actually incur than the service-based approach. The choice of options may depend on whether the goal is to compensate physicians for the actual risk of their own service mix or for the actual premium costs incurred.

This approach also has several limitations. First, it would be administratively complex because carriers would need to keep track of each physician's risk class and other changes in the PLI system in each state. As in the service-specific approach, there could be analytical problems in a state with several PLI carriers, each with different classification systems and rates. Second, this method is also driven by physician revenues. Physicians in the same risk class, paying the same premium could easily have different Medicare revenues, and therefore receive different levels of PLI reimbursement.

Third, this approach does not reimburse physicians according to the liability risk of the services performed, which is in a sense the true resource cost. For example, the PLI premium add-on would be the same, on a percentage basis, for open-heart surgery as for an office visit by a thoracic surgeon, even though it is the performance of the procedure that results in the higher rates.

A refinement of the physician-specific approach would involve different PLI payments for different classes of service within a specialty. Thus, in the last example, the higher specialty-specific rate would apply only to the high risk procedures, and office visits across all specialties would receive identical rates.

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[13] There may be physician and patient characteristics associated with specialty status (such as severity) that are also associated with liability risk, but are unrelated to individual services.

[14] For example, a family physician providing obstetrical services would be grouped with obstetricians, not family physicians.

Finally, this method would create specialty differentials. However, if a policy of separate PLI payment were adopted, it would reflect the recognition that PLI costs are different from other costs and could therefore be reimbursed differently. In effect, the payment made for the service would be the same, but the payment for PLI costs would not be for the service but rather part of the mechanism chosen to separately reimburse physicians' PLI costs. It could also be argued that physicians in different risk classes face different liability risks in providing the same service, and hence the services provided by different specialties are indeed different services.

Direct Payment

Direct payment of Medicare's portion of PLI premiums would be made on a physician-specific basis. Each year, physicians would report to Medicare their total PLI premium, total Medicare charges, and the percentage of their practice revenues attributed to Medicare patients. Medicare would then pay its share of the premium.

Lump-sum payment of PLI premiums is a simple, easily understood mechanism to pay for this unique practice cost. In some ways, physician payment would be simplified since premium costs, which are both physician-specific and determined in a non-competitive market, would be removed from fee calculations. Instead of recouping premiums through multiple volume-related payments--which could result in either over- or under-reimbursement for an individual physician--reimbursement would be based on incurred costs.

In a competitive market, this retrospective cost reimbursement method could arguably reduce physician incentives to seek out lower premiums. However, physician choice of carriers may be quite limited, affording most physicians little opportunity to seek out lower premiums (Posner, 1986). With Medicare on average paying only about 32 percent of premium expense,[15] whatever incentives physicians have to seek out lower premiums would not be significantly reduced.

The greatest obstacle to this option is the administrative difficulty of verifying the physician's annual premium and Medicare revenue proportion. The complexity of collecting and verifying information from 500,000 individuals on an ongoing basis should not be underestimated. Physicians generally have accurate data on the cost of their PLI premiums,[16] but they might have considerable difficulty in accurately determining both their total practice revenues and their Medicare revenues. Errors would undoubtedly occur, and there would be an incentive to overestimate the Medicare proportion. In order to avoid this problem, Medicare could institute a random audit system[17] with penalties for overreporting the PLI premium or the Medicare share.

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[15] The estimated Medicare share of the physician services market is 32 percent for physicians treating Medicare patients in relevant specialties (e.g. excluding pediatrics), including beneficiary payments for coinsurance and balance billing for covered services.

[16] One complication is that physicians in group practice or other practice arrangements may have some difficulty in reporting their shares of the PLI premium.

Another problem could be a reduced incentive among insurers to hold premiums down, especially if other payers were also to adopt this method of payment. If total premium costs were passed directly through to all third-party payers, pressure to hold premiums down might be reduced, since no individuals would be paying the costs of the premium. However, this objection applies to all three PLI payment methodologies.

A unique complication of this method stems from removing PLI costs from the calculation of the MFS altogether. This raises the question of whether beneficiary cost-sharing requirements should also extend to this payment. For example, if PLI costs were grouped with other practice costs as in the current system, Medicare payments excluding coinsurance would cover only 80 percent of actual PLI costs, with beneficiaries or Medicaid responsible for paying the remaining 20 percent. If Medicare directly paid 100 percent of its share of the PLI premium, it would have fewer resources available to allocate to other practice costs, and the traditional 80/20 split between Medicare and the beneficiaries would be changed.[18] A slight increase in the beneficiary premium could maintain budget neutrality without changing the 20 percent coinsurance that beneficiaries have become accustomed to over 23 years.

Other PLI Payment Issues

This section discusses lower liability risks of treating the elderly and administrative issues common to all of the options for PLI payment discussed above.

Lower Liability Risk of Medicare Patients. In order to pay for PLI premiums in a separate allocation, it will be necessary to remove the amounts paid for premiums from total practice costs in calculating the practice cost amounts paid for each service. It was noted above that the amount allocated to the PLI factor would be equal to the national average percentage of total revenues paid by physicians for liability insurance. However, this amount may overestimate the true liability risk of caring for Medicare patients.

First, Medicare patients may be less likely to have liability claims. According to a GAO study, 10 percent of closed claims were filed by Medicare beneficiaries, whereas 28 percent[19] of all physician payments are made by Medicare. Second, Medicare patients on average receive smaller awards (U.S. General Accounting Office, 1987).

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[17] This system could be operated similarly to the IRS auditing system. Reported premiums could be tracked against prior reports, as well as the average in the state and specialty of the reporting physician. Reported Medicare revenues could also be compared to reported totals in Medicare claims data.

[18] Theoretically, the PLI payment and the MFS could be adjusted to apply the coinsurance equally to fees and the PLI payment. However, this would be highly complex and would also create specialty differentials.

On the other hand, insurance rates do not differ on the basis of the age of patients. The effect of reducing liability insurance payments from Medicare to adjust for lower risk would be to penalize physicians who saw many Medicare patients, since they would be unable to obtain lower premiums based on the age mix of their patients. It would be inappropriate to adjust for this factor unless insurance rates were also calculated on this basis.

Administrative Issues. Implementing any of the methods of PLI payment discussed above will require new data collection systems as well as some analytical work described below. For the direct payment option, data would have to be collected and updated from 500,000 physicians. Auditing systems would have to be established and administrative mechanisms created to help physicians, particularly those in atypical practice environments, to provide accurate information.

The percentage markup methods require the annual collection of uniform data on average PLI premiums in all states. Additionally, analytical work to match differently defined risk classes would be necessary. The service-specific option would require further analysis to classify services into appropriate risk categories. These analyses would have to be updated regularly as insurance carriers made changes in their policies.

Since all states have insurance reporting requirements, it should be possible to obtain the necessary data on the aggregate premiums paid for different policies in different risk classes. Additionally, the data collected in both options might also be useful in the updating of expenditure targets, depending on how it was decided to treat PLI cost increases in the calculation of targets.

One benefit of the establishment of these administrative and data collection systems would be a greater understanding of the PLI issue and an improved data system to study it. Given the Commission's interest in investigating this issue and its desire to find solutions to the problems related to malpractice and PLI, these new systems could become an important resource.

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[19] This figure includes beneficiary out-of-pocket payments for covered services. The 28 percent figure is greater than the 32 percent figure addressed in note 15 because the former is calculated for all physician specialties.

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CHAPTER 6

GEOGRAPHIC MULTIPLIERS

The current geographic pattern of physicians' fees under Medicare is an incidental result of determining payment through the "customary, prevailing and reasonable" (CPR) method. It is not the outcome of a deliberate policy decision. By contrast, the Medicare Fee Schedule includes an explicit method for making geographic adjustments in payments for physicians' services.

RECOMMENDATION

Payments under the fee schedule should vary from one geographic locality to another to reflect variation in physician costs of practice. The cost-of-practice index underlying the geographic multiplier should reflect variation only in the prices of nonphysician inputs.

The Medicare Fee Schedule should include a uniform policy on the delineation of charge localities.

This chapter describes the Commission's analysis of this issue and the rationale for its recommendation. It begins by presenting data on geographic patterns of fees under CPR. It then reviews the concept of a cost-of-practice index and describes two alternative indexes considered by the Commission and the Commission's recommendations. The final section discusses delineation of charge localities.

CURRENT GEOGRAPHIC PATTERNS OF FEES

The Commission's 1988 report described the geographic variation in Medicare prevailing charges for a few selected physician services and for an index of 110 services.[1] Those analyses drew two important conclusions.

First, there is substantial variation in prevailing charges across Medicare's pricing localities. For example, for upper gastrointestinal (UGI) endoscopy, the prevailing charge in the locality at the 95th percentile of prevailing charges was 113 percent higher than that in the locality at the 5th percentile.

Second, prevailing charges are generally highest in the largest urban communities and lowest in small rural areas. For instance, the mean prevailing charge for UGI endoscopy in metropolitan areas with more than one million persons was $361 compared to $285 in small nonmetropolitan counties with fewer than 25,000 residents.

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[1] Those analyses were based on data from 1984.

Table 6-1. Value of the Allowed-Charge Index in Urban and Rural Areas[a]

	VERY LARGE METRO	LARGE METRO	SMALL METRO	LARGE RURAL	SMALL RURAL
Unadjusted	123	104	94	90	87
Deflated by Overhead Costs and COL	109	98	98	101	100
Deflated by Overhead Costs Only	115	102	96	95	93

Source: PPRC analysis.

Note: [a] Very large metro areas include counties in MSAs of 5 million or more population; large metro includes counties in MSAs of 1 million to 5 million population; small metro areas are all other metropolitan counties. Large rural (nonmetropolitan) counties have population of 25,000 or more; small rural includes all other nonmetropolitan counties.

During the past year the Commission has conducted additional analyses of the current pattern of fees. Specifically, it has examined differences in Medicare allowed charges (estimated for 1988)[2] across urban and rural areas using an index of several hundred services.[3]

The most striking finding is that the mean value of the allowed charge index in very large metropolitan areas--those with populations greater than 5 million--is 23 percent higher than the national average (Table 6-1). For other urban communities, the value of the index is close to the national average. Rural counties have charges substantially lower than the national average--10 percent lower for counties with population of 25,000 or more, and 13 percent lower for smaller rural counties.

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[2] It was important to use estimates of 1988 allowed charges because the provisions in the Omnibus Budget Reconciliation Act of 1987 (P.L. 100-203) that reduced prevailing charges for overpriced procedures have important geographic implications. These provisions specified a sliding scale for prevailing charge reductions requiring the largest reductions where charges had been the highest. This undoubtedly led to greater decreases in prevailing charges in metropolitan areas than in rural areas.

[3] In contrast to the work reported in the 1988 report, this analysis uses the average allowed charges rather than prevailing charges, and defines geographic areas according to metropolitan statistical area and the nonmetropolitan counties of states rather than by Medicare charge localities. Thus, if physicians in a rural part of a charge locality are paid less than those in the urban part of the locality, the pattern will affect the results reported.

But aggregating data for individual areas to five levels of urbanization masks some of the most troubling evidence about geographic variation. Prevailing charges in seemingly similar communities sometimes differ markedly, more than can be explained by differences in practice costs. Among large metropolitan areas, for example, 1984 prevailing charges for total hip replacement were $4,126 in New York, $3,094 in Los Angeles, $2,364 in Chicago, and $1,547 in Washington, D.C. Among smaller metropolitan areas, the prevailing charge for total hip replacement ranged from $1,200 in Kentucky to $2,520 in North Carolina. Among rural areas, the prevailing charge for total hip replacement was $2,400 in rural Mississippi, $1,882 in rural Minnesota, and $990 in rural Kentucky.[4]

Not only do charges for individual procedures vary substantially from one area to another, but the relationships among charges for different procedures also vary. Table 6-2 reports data on the geographic variation among Medicare charge localities in the ratio of average allowed charges for 12 common services to that for inguinal hernia repair. For example, 5 percent of three-vessel coronary artery bypass procedures were performed in localities where the average allowed charge was less than 5 times the average allowed charge for inguinal hernia repair, and 5 percent were performed in localities where the ratio was more than 8.7. These figures suggest that payment under the CPR system does not approximate a national charge-based relative value scale in which only the conversion factor varies by locality.

COST-OF-PRACTICE INDEXES

A geographic cost-of-practice (GCOP) index attempts to summarize variations in the prices of the resources used as inputs in a medical practice. Because an index must capture the prices of several inputs, it assigns a weight to each one. The weights reflect national data on the proportion of practice expenditures used for the various inputs.[5]

GCOP indexes can include one or both of two types of inputs: nonphysician inputs, which usually are purchased, and physicians' inputs of their own time and effort. Nonphysician inputs--often referred to as overhead--include office space, salaries of nonphysician employees, malpractice insurance, medical equipment, supplies, and automobiles. For these inputs, the prices used in the index are simply the prices paid by physicians when they purchase the inputs.[6]

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[4] The Commission's 1988 report presented data showing that these are not isolated cases. Large variations in prevailing charges across communities with the same level of urbanization are the rule.

[5] Differences in input prices may not account for all differences in practice costs across physicians because different physicians may use different mixes of inputs to produce the same services. However, paying individual physicians based on their individual practice costs would be logistically impossible and could encourage inefficient practice styles.

[6] The price of an input and a physician's expenditure for that input can differ if one physician chooses a more expensive version of the input than others. A good example is automobiles, where one physician might own an inexpensive compact and another an expensive luxury car. A price index reflects the price of a standard automobile in different areas rather than what physicians actually spend.

Table 6-2. Distribution of Relative Values for Selected Services by Charge Locality

			PERCENTILES				
HCPCS	PROCEDURE NAME	MEAN	5	25	50	75	95
19240	Mastectomy	1.8	1.4	1.7	1.8	2.0	2.3
27130	Total Hip Replacement	4.5	3.7	4.1	4.5	4.9	5.4
27447	Total Knee Replacement	4.4	3.4	4.0	4.3	4.9	5.5
33512	3 Vessel CABG	6.9	5.0	6.2	7.1	7.8	8.7
43235	UGI Endoscopy	0.6	0.4	0.5	0.5	0.6	0.8
45378	Colonoscopy	0.7	0.6	0.7	0.7	0.8	1.0
47600	Cholecystectomy	1.6	1.4	1.5	1.6	1.6	1.8
52601	TURP	2.1	1.7	2.0	2.0	2.2	2.5
66983	Cataract Removal	3.0	2.2	2.8	3.0	3.3	3.8
93549	Cardiac Catheterization	1.5	1.2	1.4	1.5	1.6	1.9
93015	Exercise Stress Test (outpatient)	0.2	0.2	0.2	0.2	0.3	0.4
93307	Cardiac Ultrasound (outpatient)	0.3	0.2	0.3	0.3	0.4	0.5

Source: PPRC analysis of 1986 BMAD procedure file.

Note: Values are relative to inguinal hernia. Percentiles are weighted by frequency of service in locality.

By contrast, there are no usable market prices for the physician input component. Because comparative cost-of-living data are unavailable for many geographic areas, economists tend to use data on earnings of nonphysicians to value the physician input component of the index.[7]

The UI/CHER Index

The Commission analyzed two versions of a preliminary GCOP index constructed by the Urban Institute (UI) and the Center for Health Economics Research (CHER) (Zuckerman, Welch and Pope, 1987): one that incorporated only prices of nonphysician inputs (labeled the "overhead-only" index) and one that included the physician input as well (the "overhead/COL" index[8]).

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[7] Some economists regard data on earnings of professionals as conceptually superior to data on costs of living for the purpose of reflecting the opportunity costs of the physician's time and effort (Zuckerman, Welch and Pope, 1987).

[8] In the overhead-only index, the physician input component is included but with a value that is a constant.

The UI/CHER index was constructed using two types of geographic units. Each Metropolitan Statistical Area (MSA) in the United States is considered a distinct unit. In addition, the entire nonmetropolitan residual of each state (the part of each state remaining after the MSAs are "carved out") is considered a distinct unit. Consequently, there are 357 geographic units in all: 309 MSAs and 48 nonmetropolitan residuals (New Jersey and Rhode Island do not have any nonmetropolitan counties).

UI/CHER researchers used the following weights for the inputs:

Physician's input component	0.58
Nonphysician employee wages	0.18
Office rent	0.05
Malpractice insurance	0.04
Medical supplies	0.05
Medical equipment	0.02
"Other" inputs	0.07[9]

Table 6-3 shows the estimates from the two versions of the UI/CHER index. The overhead-only version varies much less across geographic areas with different levels of urbanization. For example, for very large metropolitan areas the overhead-only index is 8 percent greater than the national average, but the overhead/COL index is 14 percent greater. Analogously, small rural areas have overhead-only and overhead/COL index values 6 and 12 percent below the national average, respectively. The overhead-only index also has a smaller range within each category of area.

Some have raised the concern that the UI/CHER approach to constructing a GCOP index could understate practice costs in rural areas.[10] The physician input component is based on the hourly earnings of workers with four or more years of college in professional specialty occupations. Ideally, these earnings should be adjusted for differences in occupational mix across geographic units. If this is not done, rural areas could be assigned values lower than warranted because they tend to have higher proportions of professionals in lower-paying occupations. The preliminary index released by the researchers does not reflect such an adjustment, but a forthcoming revised version will (Zuckerman, Welch, and Pope, 1987).[11]

The nonphysician components have different problems. The index assumes that three components--medical supplies, medical equipment, and "other" inputs--are available in national markets and that their prices do not vary geographically. But prices for some of these items may be higher in rural areas. For example, prices for maintenance of medical equipment may be higher due to the travel costs of technicians.

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[9] The "other" category primarily covers automobile expenses, the cost of continuing medical education, office supplies and miscellaneous inputs.

[10] See, for example, National Rural Health Care Association, 1989.

[11] A crude adjustment for occupational mix was used in this report. The value of the physician input component for rural areas was not permitted to fall below the mean for small metropolitan areas.

Table 6-3. Values for Alternative Cost-of-Practice Indexes

AREA[b]	MEAN	PERCENTILES[a] 5	25	50	75	95
OVERHEAD ONLY INDEX[c]						
Very Large Metro	1.08	1.05	1.05	1.08	1.09	1.09
Large Metro	1.03	0.98	0.99	1.02	1.05	1.11
Small Metro	0.99	0.94	0.96	0.98	1.01	1.06
Large Rural	0.95	0.93	0.93	0.95	0.97	1.01
Small Rural	0.94	0.92	0.93	0.94	0.95	0.98
OVERHEAD/COL INDEX						
Very Large Metro	1.14	1.07	1.07	1.13	1.22	1.22
Large Metro	1.07	0.93	0.99	1.05	1.16	1.26
Small Metro	0.98	0.89	0.91	0.95	1.02	1.15
Large Rural	0.90	0.87	0.87	0.89	0.92	0.97
Small Rural	0.88	0.86	0.87	0.88	0.89	0.94

Source: PPRC analysis.

Note: [a] Percentiles and mean for population - weighted values of the index.

[b] Very Large Metro areas include counties in MSAs of 5 million or more population; large metro includes counties in MSAs of 1 million to 5 million population; small metro area are all other metropolitan counties. These areas accounted for 14, 37 and 33 percent respectively of Medicare allowed charges in 1988. Large rural (non-metropolitan) counties have population of 25,000 or more; small rural includes all other non-metropolitan counties. These areas accounted for 9 and 7 percent, respectively of Medicare allowed charges in 1988.

[c] These indexes are computed from indexes developed by the Urban Institute and the Center for Health Economics Research for the Health Care Financing Administration. The overhead-only index is a measure of relative costs of inputs other than physicians' own time: employee wages, office rent, professional liability, and supplies and other equipment.

The overhead/COL index is a measure of relative costs of all inputs including physician time; the value of physician time in rural areas is constrained to be at least as great as the value in small metropolitan areas in each state.

Furthermore, even an ideal price index may not take account of some diseconomies of rural practice. For example, rural physicians may have to support underutilized medical diagnostic equipment because there are fewer outside facilities that their patients can use.

The Commission has collected data on the costs of rural practice through its Survey of Physicians. The analysis will focus on determining whether an adjustment of the UI/CHER index for rural practices would be justified.

Geographic Variation after Adjustment for Costs of Practice

A GCOP index permits further attention to the pattern of geographic variation described above. Returning to Table 6-1, adjustment for cost-of-practice reduces the differences across categories of communities. The overhead/COL version explains much of the difference in charges between urban and rural areas, whereas the overhead-only version explains about half of the difference. In either case, however, very large metropolitan areas stand out as having higher charges than the rest of the nation after adjustment.

To what degree inequities currently exist between urban and rural areas depends on which adjustment one considers more appropriate. If the overhead/COL index is considered the appropriate adjustment, the major inequity is that payments are too high in very large metropolitan areas (assuming that the index does not substantially understate rural practice costs). However, the inequity in payments is much broader if the overhead-only index is the appropriate adjustment, because then payments are both too high in metropolitan areas and too low in rural areas.

Inequities also exist among individual areas in the same category. Analyses in the Commission's 1988 report showed that while adjusting for costs of practice reduced the variation in prevailing charges across pricing localities somewhat, substantial variation remained. Those analyses suggest that at the level of individual charge localities, prevailing charges are only loosely related to practice costs.

THE MEDICARE FEE SCHEDULE AND GEOGRAPHIC VARIATION IN PAYMENT

To understand the overall impact of the Medicare Fee Schedule on the geographic variation in payment, the effects of geographic policy (substitution of a geographic multiplier based on costs of practice for the current pattern) and a relative value scale (RVS) based on resource costs need to be analyzed separately.[12] Geographic policy has an obvious and direct effect on the geographic distribution of payments to physicians. But replacing charge-based relative values with those based on resource costs also has geographic implications that should not be ignored. Physicians in localities in which the service mix is oriented more toward evaluation and management services--primarily rural areas--will gain from this change.

The Commission conducted simulations using the BMAD provider file to measure the impact of the geographic policy alone--that is, measuring the impact of moving from a uniform charge-based RVS with a conversion factor for each locality which would maintain aggregate payments in that locality to a charge-based RVS with a national conversion factor and a geographic multiplier.[13] The simulations show that with a geographic multiplier based on the overhead-only index, Medicare payments to physicians would decline by 13 percent in very large metropolitan areas and increase by 6 and 8 percent in large and small rural areas, respectively (Table 6-4). Changes in other categories of urban areas would be much smaller.

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[12] The first step in this decomposition is replacing CPR with a fee schedule that has an RVS based on national charges and a conversion factor for each locality that is budget neutral for that locality. Making relative fees uniform does lead to some redistribution across individual physicians in an area (Table 6-2), but the effect is small. This step provides a suitable benchmark against which to measure the impact of the alternative geographic multipliers. Because relative payments for different services are the same in all localities, there is no confounding of the effects of alternative geographic policies with the effects of making relative fees uniform.

With a geographic multiplier based on an overhead/COL index, less redistribution would occur. Lower payments to physicians in very large metropolitan areas would be the only substantial change from the baseline. Payments would not increase in rural areas, however, because the Medicare revenues lost by very large metropolitan areas would be redistributed to other urban communities instead.

To assess the geographic impact of the RVS policy alone, simulations compared a uniform charge-based RVS with a national conversion factor to an RVS based on resource costs with a national conversion factor, each having the same geographic adjustment. A change from a charged-based RVS to a RVS based on resource costs would increase payments to physicians in rural areas by 5 percent. Effects in urban areas would be small. Thus, the impact of the entire Medicare Fee Schedule on categories of geographic areas (reported in Chapter 9) derives primarily from the impact of the geographic component of the policy. The notable exception is the gain for rural areas from the RVS policy.

SPECIFICATION OF A GEOGRAPHIC MULTIPLIER

The Commission recommends that the geographic multiplier for the Medicare Fee Schedule reflect geographic variation in overhead costs but not in cost-of-living.[14] It believes that limiting adjustments to prices for nonphysician inputs is more equitable for both physicians and beneficiaries. The overhead-only version of the UI/CHER index meets the Commission's criteria.

The Commission's judgment concerning equity agrees with the opinions of many physicians and beneficiaries. Several national organizations representing physicians and beneficiaries testified before the Commission urging that the geographic multiplier reflect only nonphysician inputs. These organizations include the American Association of Retired Persons, the American Medical Association, the American College of Physicians, and the American Society of Internal Medicine. They argued that the net compensation to a physician for providing a service should not vary from one locality to another and that geographic variation in fees should offset only differences in nonphysician practice costs.

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[13] The simulation methodology is described in Appendix G.

[14] The Commission also considered the proposals of some organizations that fees be uniform throughout the nation--that a geographic multiplier not be used. It found such an approach to be inconsistent with the concept of a fee schedule based primarily on resource costs. The evidence that the costs of practice vary from one locality to another is strong enough to require the use of a geographic multiplier.

Table 6-4. Alternative Geographic Multipliers under a Charge-Based Fee Schedule: Impact on Physicians

AREA[a]	SPECIALTY GROUP	PERCENT CHANGE IN MEDICARE PAYMENTS OVERHEAD/ COST-OF-LIVING	 OVERHEAD ONLY
Very Large Metro			
	Medical	-9.2	-13.7
	Surgical	-9.6	-14.0
	All physicians	-8.4	-13.1
Large Metro			
	Medical	2.4	-0.8
	Surgical	0.7	-2.0
	All physicians	1.6	-1.8
Small Metro			
	Medical	1.9	4.6
	Surgical	2.3	5.0
	All Physicians	2.2	4.6
Large Rural			
	Medical	-1.7	5.3
	Surgical	-0.7	6.0
	All Physicians	-1.2	5.7
Small Rural			
	Medical	0.2	7.8
	Surgical	-0.4	7.2
	All Physicians	0.1	7.7

Source: PPRC analysis of 1986 BMAD III provider file data aged to 1988.

Note: [a] Very Large Metro areas include counties in MSAs of 5 million or more populations; large metro includes counties in MSAs of 1 million to 5 million population; small metro area are all other metropolitan counties. These areas accounted for 14, 37, and 33 percent respectively of Medicare allowed charges in 1988. Large rural (non-metropolitan) counties have population of 25,000 or more; small rural includes all other non-metropolitan counties. These areas accounted for 9 and 7 percent, respectively of Medicare allowed charges in 1988.

The Commission also tried to ascertain whether either version of the GCOP index would be more likely to improve beneficiary access to physician services and/or enhance financial protection for beneficiaries but could not find conclusive evidence. It thus saw no reason to depart from its judgment based on fairness.

LOCALITY BOUNDARIES UNDER THE MEDICARE FEE SCHEDULE

Under the current payment system, locality boundaries do not reflect any consistent policy. Drawing the boundaries has traditionally been left to each carrier. In some cases localities are entire states; in others, each metropolitan area in a state is a locality and the rural areas are grouped into another locality. Some carriers divide states into regions, each of which includes a metropolitan area and surrounding rural districts. One carrier follows congressional district boundaries. Implementation of a fee schedule presents an opportunity to decide which types of locality boundaries make the most sense and to apply the policy consistently across the country.

Setting locality boundaries involves a number of conflicting goals. First, the localities should be homogeneous with respect to costs of practice. Since one purpose of a fee schedule is to have payments vary geographically according to differences in the costs of practice, lack of homogeneity within a locality would prevent realization of this goal.

Second, locality boundaries should be drawn so as to avoid sharp differences in payment rates on different sides of the boundary unless costs of practice are also sharply different. Sharp differences may stimulate physicians to move across boundaries.

Third, the boundaries must be administrable. Discussions with carriers indicate that the key constraint is that the boundaries coincide with postal code boundaries. This is not terribly restrictive, since county and metropolitan statistical area (MSA) boundaries do conform to postal code boundaries. Another aspect of administrability concerns data availability. While five-digit zip codes might be the most homogeneous, little of the data required to develop a cost-of-practice index is available for areas that small. Most of it tends to be available on a county or MSA basis.

In the simulations reported in this chapter and in Chapter 9, the geographic multiplier applied to locality boundaries is similar to those used in Medicare hospital payment under the Prospective Payment System (PPS). Under this method, each MSA is a locality, as are the nonmetropolitan counties in a state. Unlike PPS, however, the same scale of payment is used in urban and rural areas.

Working in conjunction with the HCFA and its Part B carriers, the Commission plans to examine the alternatives and develop a specific policy during the upcoming year. It plans to recommend a uniform policy to establish locality boundaries, but recognizes the importance of a small number of departures to reflect unique local circumstances.

REFERENCES

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CHAPTER 7

ASSIGNMENT POLICY UNDER THE MEDICARE FEE SCHEDULE

The effects of the Medicare Fee Schedule on beneficiaries and physicians will depend on the assignment policy that accompanies its implementation. A physician who "accepts assignment" on a claim bills Medicare directly, and agrees to accept Medicare's allowed charge as payment in full for his or her services and to bill the patient only for the Part B deductible and coinsurance. When assignment is not taken, the physician bills the beneficiary directly for the claim; the beneficiary then submits the bill to Medicare for reimbursement of Medicare's share of allowed charges. In this case the beneficiary is financially liable not only for the Part B coinsurance and deductible, but also for any amount by which the physician's billed charge exceeds the Medicare allowed charge. This amount is known as the balance bill or extra bill.[1]

Congress and the Health Care Financing Administration (HCFA) have done much to encourage physicians to take assignment on Medicare claims. There are financial and administrative incentives for physicians to accept all claims on assignment, general limits on charges for physicians who do not accept assignment, specific limits on charges for "overpriced" procedures and radiology services, and prohibitions on balance billing for any laboratory services.

While the proportion of claims paid on an assigned basis is increasing, physicians still bill in excess of the allowed charge on about one-fourth of all claims.[2] In fiscal year 1988, beneficiaries' total extra billing liability was $2.25 billion. This amounts to about $94 for each beneficiary receiving covered services, or $154 for each beneficiary who was actually balance billed at least once.[3] (Based on simulations of 1986 claims data, PPRC estimates that 39 percent of all beneficiaries, including the 10 percent with Medicaid coverage, have no balance bills.)

RECOMMENDATIONS

Charges for unassigned claims should be limited to a fixed percentage of the fee schedule amount. This policy would replace the current maximum

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[1] Following the convention adopted by the Commission in its 1988 report, the text uses "extra billing" and "balance billing" interchangeably.

[2] The proportion of balance bills actually collected by physicians is not known.

[3] HCFA Reasonable Charge and Denial Activity Report, 1989. HCFA estimates that 24,000,000 beneficiaries had Part B claims paid in 1988.

allowable actual charge (MAAC) limits. The Commission does not have a recommendation for the specific percentage to be used.

The Participating Physician and Supplier Program (PAR) and its payment differential providing higher fees to participating physicians should be continued under the Medicare Fee Schedule.

Balance billing should not be permitted for any Medicare beneficiary whose cost sharing is paid by Medicaid.

In addition, the Commission is concerned about balance billing when beneficiaries do not have the opportunity to select among physicians and about the burden of coinsurance and extra billing for medically or financially vulnerable beneficiaries. The Commission will be examining these issues in greater detail, but is not yet ready to make recommendations.

This chapter begins with a discussion of policy issues that the Commission has considered. The core of the chapter reviews the analyses that led the Commission to its recommendations. The final section considers the Commission's additional concerns about balance billing and beneficiary protection.

The Commission's March 1988 report summarized available information on trends in assignment and participation rates,[4] and how those rates vary by geography, specialty, type of service, and site of service. This year the Commission sponsored four research projects on enrollees' experiences: an analysis of 1980 NMCUES[5] data, an analysis of 100 percent of 1987 claims data from eight states,[6] a national survey of physicians,[7] and a national survey of beneficiaries.[8] Information from these projects is presented in Appendix E. Appendix F reviews state legislation constraining extra billing.

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[4] Physicians who "participate" agree in advance to accept assignment on all their Medicare claims for a defined period (usually one year).

[5] National Medical Care Utilization and Expenditures Survey. This analysis was part of an ongoing study by Levine Associates.

[6] This analysis was part of an ongoing study by The Circle, Inc.

[7] The PPRC Survey of Physicians was conducted by Westat, Inc., in cooperation with Project Hope. In all, 2820 respondents completed a mail survey with telephone follow-up between November 1988 and January 1989. The survey investigated physicians' practice costs and assignment patterns.

[8] This survey was conducted by Mathematica Policy Research, Inc., November 1988-January 1989. In all, 1,994 beneficiaries who are not enrolled in HMOs were interviewed by telephone. Stratified sampling techniques were used to ensure adequate representation of dual eligibles, low-income beneficiaries, rural beneficiaries, beneficiaries 85 years and older, and the chronically ill or frail elderly.

ASSIGNMENT UNDER THE MEDICARE FEE SCHEDULE: POLICY CONSIDERATIONS

The issues at stake in developing an assignment policy for a resource-based fee schedule--how the fee schedule will affect beneficiaries, physicians, and the Medicare program--are politically sensitive and important. In this section, we review several of the critical issues and concerns underlying the Commission's decisions regarding assignment and balance billing policy.

A new fee schedule cannot be introduced into the Medicare program without making explicit decisions about assignment policy, since current policy includes limitations on charges for unassigned claims. However, the current maximum allowable actual charge (MAAC) limits are based on each physician's charges during 1984 under CPR and therefore would not be relevant to the new fee schedule.[9] A fee schedule with no balance billing restrictions would be a significant change from current policy.

Decisions regarding assignment policy are also related to decisions about the conversion factor and the absolute level of fees Medicare will pay. The resource-based fee relative value scale addresses only part of the problem of adequate payment for procedures and services. The Commission has developed its fee schedule analyses and recommendations using a conversion factor derived from the assumption of budget neutrality, that is, that total program outlays for physicians would be the same under the fee schedule as under CPR.

Beneficiary Issues

The primary goal of the Medicare program is to insure elderly and disabled Americans against the costs of acute medical care. Unlimited extra billing under the Medicare Fee Schedule could substantially increase beneficiary costs and reverse progress toward that goal.

Beneficiary concerns need to be considered in the context of the rapid increases in their overall medical costs.[10] On average, the noninstitutionalized elderly spent 8 percent of their income on acute health care in 1984 (Moon, 1987).[11] Medicare beneficiary costs have been increasing at rates that far exceed increases in the cost-of-living adjustment for Social Security. These costs include Part B premium payments ($27.90 per month in 1989), the Part B deductible ($75.00 per year in 1989), the Part A deductible ($560.00 per year in 1989), and a catastrophic health premium ($4.00 per month in 1989 plus a surtax according to income level). There are also a number of commonly used services that Medicare does not cover, such as preventive care, hearing aids, dental care, eyeglasses, and most medication.

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[9] The maximum allowable actual charge (MAAC) was created by the Omnibus Budget Reconciliation Act of 1986 (P.L. 99-509, OBRA86) to continue constraints on the actual charges of nonparticipating physicians after the end of the 1984-1986 fee freeze. Currently scheduled to be in effect through 1990, MAACs are based primarily on actual charges in the second quarter of 1984 (the period just before the enactment of DEFRA). For physicians with relatively high charges--those exceeding 115 percent of the prevailing charge for nonparticipating physicians--the MAAC limits increases in charges to 1 percent a year. Physicians whose charges are less than 115 percent of the prevailing charge are allowed to increase charges to that level by 1990, when MAACs are scheduled to sunset. MAAC limits originally applied to physicians' average annual charge for a given service. The Omnibus Budget Reconciliation Act of 1987 revised MAACs so that the limit applies to each individual service.

[10] For more detail about overall health care costs for the elderly, see Chapter 1.

In addition to concerns about the financial burden of balance billing, beneficiary access to care is a primary consideration in assessing assignment options. If physicians are allowed to bill in excess of the allowed charge, some Medicare beneficiaries might be discouraged from seeking medical attention because of the extra out-of-pocket cost. But beneficiary access to services could also be reduced if physicians perceive Medicare fee levels to be inadequate and extra billing is not permitted.

Beneficiary organizations have expressed strong support for a mandatory assignment policy.[12] They argue that a resource-based fee schedule represents fair and adequate payment, so extra billing would be inappropriate and would place an unfair burden on beneficiaries. Beneficiary groups also argue that extra billing undermines the integrity of Medicare as an entitlement program which should provide equal benefits to all enrollees.

Uncertainty about the impact of a Medicare fee schedule on beneficiaries has caused anxiety in the beneficiary community (AARP, 1989). The fee schedule would alter patterns of exposure to balance bills. Changes in the balance billing liability of individual beneficiaries would vary, depending on what services they use, where they live, and their previous experience in obtaining services on an assigned basis. More physicians might take assignment for services whose fees are increased. But without balance billing constraints, the size of balance bills for services with reduced fees could increase substantially unless physicians were willing to absorb the loss.

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[11] A much larger financial burden falls on the roughly 5 percent of the elderly who require long-term care. Medicare covers less than 2 percent of these elderly's expenses which average about $20,000 dollars a year (Moon, 1987).

[12] The organizations testifying before the Commission in favor of mandatory assignment on all Medicare claims include the American Association of Retired Persons (AARP), The Villers Foundation and Citizen Action. The Leadership Council of Aging Organizations has also submitted a policy statement to the Commission endorsing a mandatory assignment policy. The Council is a coalition of 31 associations representing senior citizens. Signatories of the statement to the Commission on mandatory assignment were the American Federation of State, County and Municipal Employees Retiree Program, Catholic Golden Age, the National Association of Retired Federal Employees, the National Council of Senior Citizens, the Older Women's League, and AARP.

Beneficiaries are also concerned because coinsurance payments would increase for those services for which allowed charges rise under the fee schedule. (Of course, coinsurance will decrease for services with reduced allowed charges.) This will happen whether the beneficiary obtains the service on an assigned or nonassigned basis. Therefore, in assessing assignment options, it is important not to focus exclusively on balance billing, but also to consider the effects of the fee schedule on the combined costs of coinsurance and balance billing expenses.

Beneficiaries' supplementary insurance coverage would also influence their expenses under the new fee schedule. Currently, only an estimated 20-30 percent of Medigap policies reimburse costs above what Medicare allows.[13] But if extra billing were restricted to a fixed percentage above the fee schedule, insurers might find the market for extra billing coverage more predictable, and therefore attractive.[14]

Expanded Medigap coverage of balance billing would allow more beneficiaries to insure themselves against these often unexpected and sometimes large expenses. However, if Medigap coverage of balance billing became widespread, physicians might raise most fees to the balance bill ceiling (Frech and Ginsburg, 1975). This in turn could lead to increased Medigap premiums, as well as increased extra bills for beneficiaries without Medigap coverage. It is therefore important to monitor the effect of Medigap coverage on beneficiary costs.

Physician Issues

Most physician organizations oppose mandatory assignment.[15] They believe that controlling physicians' fees is antithetical to the principles of a market economy, and that artificially constrained prices would be unfair to physicians and could lead to access problems for beneficiaries. Some argue that a fee schedule, which makes allowed charges more easily known to providers and beneficiaries, would facilitate price competition and eliminate the need for artificial constraints on fees.

Only one specialty society has indicated to the Commission that it believes in principle that "a reimbursement system that incorporates fair and equitable payment for services establishes a basis on which to consider the elimination of balance billing" (American Academy of Family Physicians, 1988).[16] Other physician organizations fear that if the conversion factor were set too low, mandatory assignment would prevent them from collecting an adequate fee (American College of Physicians, April 1989).[17] The American College of Physicians and the American Academy of Family Physicians support actual charge limits to be set at a fixed percentage above the fee schedule. Some physicians have argued that limits on balance bills would pose a financial threat to the Medicare program, by creating greater beneficiary demand for services (American Medical Association, 1989).

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[13] PPRC estimate based on information provided by the Blue Cross/Blue Shield Association and the Health Insurance Association of America.

[14] It should be noted that methods to limit the risk of insuring extra billing already exist and insurers have not actively pursued this market. For example, most Medigap policies that do cover extra billing limit coverage to the allowed charge under the insurer's private plans.

[15] However, many physician organizations have endorsed prohibiting balance billing of low-income beneficiaries (see below).

It is difficult to predict how physicians actually would respond to the fee schedule, or to balance billing constraints under a fee schedule. Actual physician response could depend not only on incentives within the Medicare program, but on Medicare's relative position in the market for physician services.

Medicare accounts for 32 percent of the average revenues of physicians who treat Medicare patients.[18] Other payers might change their payment levels in response to Medicare changes. If they do not, however, payment differences between Medicare and private insurance could increase for some services. Attempts by Medicare to limit or eliminate extra billing could then entail some risk. Physicians could decrease their Medicare caseloads relative to private caseloads, possibly limiting beneficiary access to Medicare services.

COMMISSION RECOMMENDATION ON BALANCE BILLING LIMITS

The Commission recommends that charges for unassigned claims should be limited to a fixed percentage of the fee schedule amount. This policy would replace current MAAC limits. The Commission does not recommend a specific percentage by which charges would be limited.

The Commission recommends charge limits because the market for physicians' services does not function well enough to preclude the need for financial protection for Medicare beneficiaries. Without limits on balance billing, beneficiary costs could increase and access to care could suffer.

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[16] In testimony before the Subcommittee on Health, Committee on Ways and Means, U.S. House of Representatives, April 17, 1989, the Academy proposed limiting balance billing for all physicians and all services to 125 percent of the fee schedule amount, in addition to prohibiting balance billing for beneficiaries with incomes below 200 percent of the poverty level.

[17] This concern was also voiced by Dr. James Todd, Senior Deputy Executive Vice President of the AMA, in testimony before the Commission, February 8, 1989.

[18] PPRC estimate. According to the AMA's Socioeconomic Monitoring System, Medicare accounted for 28 percent of the average physician's income in 1986. For certain specialties (including internists, ophthalmologists, and thoracic surgeons), Medicare's contribution to physician income is much higher than average (Paxton, 1987).

However, the Commission does not recommend mandatory assignment at this time.[19] The Commission recognizes that the fee schedule is designed to compensate physicians for the typical or representative costs of providing services or procedures. It cannot always reflect the complexity or difficulty involved in treating specific cases. Some provision for balance billing provides a "safety valve" for physicians who believe that the fee schedule does not adequately reflect the quality of services they provide. Without a safety valve, beneficiary access to care could be reduced. In addition, no matter how much care is taken in developing the fee schedule, there will be instances where prices do not precisely reflect resource costs, or where sudden changes in technology result in increased costs for a procedure that cannot be immediately incorporated into the fee schedule.[20]

PPRC Simulations of the Medicare Fee Schedule

PPRC conducted extensive analyses of claims data to simulate the effects of the Medicare Fee Schedule on beneficiaries and physicians. The Commission also examined the impact of alternative limits on balance billing. The simulations show that limiting balance billing to a fixed percentage of the fee schedule would substantially reduce beneficiaries' liability for coinsurance plus balance billing from current levels.

The Simulation Model. This analysis of balance billing options draws on data from the Commission's simulations of Medicare beneficiary and provider files. The simulations are based on data from the 1986 BMAD IV files and a 5 percent sample of beneficiary claims. The data were "aged" to take into account the changes in payment implemented during the period 1986-88. The submitted charges therefore reflect MAACs, the 5 percent payment differential between participating and nonparticipating physicians, and reductions in allowed charges for "overvalued procedures." It is assumed that physicians would charge at least the fee schedule amount, that is, that physicians would not charge less than the Medicare-allowed amount under the new fee schedule.[21]

The simulations are designed to show the effects of assignment options on physician services only. As in all other simulations of the Medicare Fee Schedule, physician behavior regarding assignment was assumed to be static. It was assumed that claims assigned in 1988 under CPR would be assigned under the fee schedule and that physicians would provide the same services under the fee schedule as under CPR[22].

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[19] A minority report in favor of mandatory assignment is presented at the end of this chapter.

[20] Of course, there will also be procedures for which new technologies reduce resource costs. For these, fees will have to be lowered accordingly.

[21] The simulation methods and assumptions are discussed in detail in Appendix G.

While it is reasonable to assume that physicians would respond to the changed incentives created by the fee schedule, the assumption of static behavior was made because there is no precedent on which to base a quantitative estimate of behavioral responses.[23] Therefore, the results of the simulations should be considered as indicators of the direction and magnitude of changes, not as precise estimates.

The costs of Medicare Part B premiums and deductibles are clearly important in considering beneficiaries' out-of-pocket costs, as are the costs of Part A deductibles and payments for services not covered by Medicare. For the purposes of comparing assignment options, however, it is particularly important to assess differences in the two components of beneficiary liability directly affected by implementation of a new fee schedule: coinsurance and balance billing liability. The simulation results exclude Medicare/Medicaid dual eligibles because Medicaid is responsible for paying Medicare beneficiaries' cost-sharing and Medicaid recipients cannot be balance billed.[24]

The Commission simulated the following alternative policies:

o No limits on balance billing.

o Prohibition of balance billing (mandatory assignment).

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[22] In order to test the sensitivity of the assumptions in the simulation models, a comparison was made of the potential balance billing liability under the fee schedule compared to potential liability under the current CPR system. The simulations show that when defined as the difference between physicians' submitted charges and Medicare payments, regardless of assignment and participation decisions, maximum potential balance billing liability under the fee schedule and CPR are very similar.

[23] The extent and magnitude of the changes in payments associated with the fee schedule are far greater than any previous Medicare physician payment adjustment. Historical experience and past analyses of the effects of changes in assignment and participation behavior therefore offer very limited help in trying to predict how physicians would react to the fee schedule. One "natural experiment" took place in Colorado between 1976 and 1978 when ten statewide Medicare pricing localities were replaced by one. This resulted in a lowering of prevailing charges for urban physicians relative to those of physicians practicing outside of Denver, the state's largest metropolitan area. While overall assignment rates were declining at the time, these analyses show that fee increases slowed the rate of decline. For increases of up to 10 percent in fees for medical services, each 1 percent contributed to about 0.3 percent higher assignment rates (Rice, 1984). For surgical services, Rice found that there was no change in assignment rates for surgical services that were reduced by small amounts (less than 5 percent). Unlike the current situation, however, the Colorado adjustment of CPR payments occurred in an environment in which all prevailing charges were increasing, so that most reductions were actually slower rates of increase, and there were few changes of great magnitude--most were less than 10 percent of prevailing charges. There was also no PAR program.

[24] The Commission's recommendation regarding "Qualified Medicare Beneficiaries" receiving cost-sharing benefits from the Medicaid program is discussed below.

- Limits on balance billing ranging from 110 to 140 percent of the fee schedule amount.

The simulations were designed to delineate the boundaries of potential effects on beneficiaries and physicians. In addition to simulating the average effects of charge limits between 110 and 140 percent, the Commission simulated distributional effects of 115, 120, and 125 percent charge limits because limits in this range have already been applied to specified Medicare services. In the Omnibus Budget Reconciliation Acts of 1986 and 1987 (OBRA86 and OBRA87; P.L. 99-509 and P.L.100-203), Congress imposed specific limits on actual charges of procedures for which prevailing charges were reduced because the procedures were considered to be overvalued by Medicare. Charges for those procedures were limited to 125 percent of the new prevailing charge plus one half the difference between the allowed charge and the MAAC in 1988 and to 125 percent of the reduced prevailing charge thereafter. Under the provisions of OBRA87, a fee schedule for the services of radiologists went into effect in 1989; actual charges for these services will be limited to 125 percent in 1989, 120 percent in 1990, and 115 percent in 1991.

Coinsurance Under the Medicare Fee Schedule

Adoption of a cost-based fee schedule could theoretically affect beneficiaries' actual out-of-pocket costs in two ways, by changing coinsurance and by changing extra billing liability.

Assuming budget neutrality, beneficiaries' aggregate coinsurance liability would not change under the fee schedule. The simulations also show that the distribution of coinsurance liability among beneficiaries would change only slightly under the fee schedule. Table 7-1 shows that beneficiaries aged 65-74 would pay about 2 percent less in coinsurance, while those over 85 would pay 5 percent more. Additional analysis indicates disabled beneficiaries would pay 3 percent more.

It is important to note that 70 percent of Medicare beneficiaries have "Medigap" supplemental insurance policies that cover the costs of coinsurance.[25] Therefore, the changes in coinsurance liabilities shown in the tables overstate the impact of the fee schedule on beneficiaries' direct out-of-pocket expenses for coinsurance. The effects of Medigap coverage on coinsurance are discussed in Chapter 9.

Policies Limiting Charges Under The Cost-Based Fee Schedule

It is difficult to predict how physicians will respond to the redistribution of Part B revenues resulting from the new fee schedule. But the magnitude and direction of changes in patterns of Medicare payments and beneficiary liability for cost-sharing

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[25] PPRC Survey of Medicare Beneficiaries, 1988.

Table 7-1. Mean Coinsurance for Physician Services, by Beneficiary[a] Category

CPR and Medicare Fee Schedule

BENEFICIARY CATEGORY	CPR BASELINE	MFS	
	$	$	% CHANGE FROM CPR
All	**147**	**147**	**0**
< 65 yrs	157	162	3
65 - 74	138	135	- 2
75 - 84	160	160	0
85+ yrs	147	155	5
Males	**159**	**156**	**- 2**
white	159	156	- 2
non-white	152	152	0
Females	**139**	**141**	**1**
white	140	141	1
non-white	136	140	3
Area			
very large metro	208	183	-12
large metro	167	165	- 1
small metro	140	142	1
large rural	125	129	3
small rural	114	120	6
Income (percent poverty level)			
below	123	129	4
100 - 149%	131	133	1
150 - 199%	136	138	2
200 - 299%	149	150	1
300% and over	159	154	- 3
Hospitalized			
yes	370	373	1
no	80	79	- 2

Source: PPRC Simulation.

Note: [a] Excludes enrollees who did not have claims and Medicaid beneficiares.

Table 7-2. Effects of Alternative Balance Bill Limits on Beneficiaries[a] under the Medicare Fee Schedule

	CHANGE IN BALANCE BILL LIABILITY FROM CPR		BENEFICIARIES WITH > $500 BALANCE BILL LIABILITY
	$	%	%
CPR	0	0	4
MFS BALANCE BILL LIMITS			
No Limit	29	32	6
140% Limit	-34	-38	2
130% Limit	-46	-50	1
120% Limit	-59	-65	1
110% Limit	-73	-81	0
Mandatory Assignment	-91	-100	0

Source: PPRC Simulations.

Note: [a] Excludes enrollees who did not have claims and Medicaid beneficiaries.

are clear (Tables 7-2 through 7-6). If balance billing were unconstrained under the fee schedule, beneficiaries would on average incur 32 percent more in balance bills than they currently do (Table 7-2). However, limiting physicians' submitted charges to some percentage above the fee schedule could substantially reduce beneficiary liability.

Any of the charge limitations simulated--up to 140 percent of the fee schedule--would reduce balance billing relative to CPR (Table 7-2).[26] For example, a 120 percent limit on actual charges would reduce beneficiary balance bills by 65 percent compared to present levels. This would reduce aggregate extra billing liability by about $1.5 billion, from $2.25 billion to $.75 billion.

Table 7-3 shows the effect of selected charge limits by category of beneficiary. If a 120 percent balance billing limit were implemented with the Medicare Fee Schedule, 96 percent of beneficiaries would have lower balance billing liability than they have under CPR. The effects of charge limits on beneficiaries' balance billing liability would be very similar across all beneficiary categories. In percentage terms, the effects of charge limits would be uniform among beneficiaries of different income status.

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[26] These actual charge limits refer to the Medicare allowed charge, that is, the fee schedule amount. For example, a 120 percent charge limit means that physicians could charge no more than 120 percent of the fee schedule amount.

Table 7-3. Mean Balance Bill Liabilities for Physician Services by Beneficiary[a] Category

MFS With Alternative Balance Bill Limits

BENEFICIARY CATEGORY	CPR BASELINE $	EXPENSES AS PERCENT CHANGE FROM BASELINE			
		NO LIMIT	125%	120%	115%
All	91	32	-57	-65	-73
< 65 yrs	78	25	-63	-69	-76
65 - 74	92	34	-58	-65	-73
75 - 84	96	33	-56	-63	-72
85+ yrs	80	24	-57	-64	-72
Males	97	37	-57	-65	-73
white	101	37	-57	-65	-73
non-white	56	26	-60	-67	-75
Females	86	28	-57	-65	-73
white	89	29	-57	-65	-73
non-white	51	19	-60	-67	-75
Area					
very large metro	116	48	-62	-69	-76
large metro	88	33	-57	-65	-73
small metro	92	30	-56	-64	-72
large rural	84	29	-57	-65	-73
small rural	87	27	-57	-64	-72
Income (% poverty level)					
below	70	23	-58	-65	-73
100 - 149%	81	27	-57	-64	-72
150 - 199%	83	29	-56	-64	-72
200 - 299%	92	31	-57	-64	-72
300% and over	105	38	-57	-64	-72
Hospitalized					
yes	233	39	-59	-66	-74
no	48	23	-55	-63	-71

Source: PPRC Simulations.

Note: [a] Excludes enrollees who did not have claims and Medicaid beneficiaries.

Table 7-4. Distribution of Beneficiaries[a] by Balance Bill Expenses for Physician Services

MFS with Alternative Balance Bill Limits

	PERCENT OF BENEFICIARIES					
BALANCE BILL LIABILITIES	$0	$1 - 100	$101 - 250	$251 - 500	$501 - 1000	> $1000
CPR Baseline	29%	53%	10%	5%	3%	1%
MFS Balance Bill Limits						
No Limit	37	43	9	4	3	3
125% Limit	37	54	6	3	1	0
120% Limit	37	55	6	2	1	0
115% Limit	37	56	5	1	0	0

Source: PPRC Simulations.

Note: [a] Excludes enrollees who did not have claims and Medicaid beneficiaries.

The impact of charge limits on beneficiaries' balance billing is dramatic because balance billing is concentrated among a small number of beneficiaries with high balance bills (Table 7-4). In the simulation sample, 29 percent of beneficiaries (39 percent including those with Medicaid) had no balance bills, while 10 percent of beneficiaries were liable for 71 percent of total balance billing. The average ratio of submitted to allowed charges on unassigned claims was 1.3, and the median was 1.2. The distribution is skewed by a small number of beneficiaries with very high balance bills; 1 percent of beneficiaries have balance bills greater than $1155. If a 120 percent balance billing limit were applied to current CPR charges, it would result in some reduction on half of unassigned claims, and very large reductions on some claims.

Balance billing accounts for almost 40 percent of combined (balance billing and coinsurance) expenses for beneficiaries without Medicaid. Therefore, the simulated limits would result in a decrease not only of balance billing liability, but also of total liability for coinsurance plus extra billing (Table 7-5).[27] For example, a 125 percent limit on actual charges would on average decrease beneficiaries' coinsurance and balance billing liability by 22 percent. Balance billing then would be 30 percent of combined balance billing plus coinsurance. The effects of charge limits would be fairly uniform among poverty status groups, with a somewhat greater decrease for

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[27] Static simulations suggest that a policy of unconstrained balance billing would increase actual balance billing under the fee schedule. In these simulations, the combined effects of changes in coinsurance and extra billing would increase overall beneficiary liability by about 12 percent over CPR levels, if a resource-based fee schedule were enacted with unconstrained balance billing.

Table 7-5. Mean Coinsurance plus Balance Bill Liabilities for Physician Services by Beneficiary[a] Category

MFS with Alternative Balance Bill Limits

		EXPENSES AS PERCENT CHANGE FROM BASELINE				
BENEFICIARY CATEGORY	CPR BASELINE $	NO LIMIT	125%	120%	115%	MANDATORY ASSIGNMENT
All	238	12	-22	-25	-28	-38
< 65 yrs	235	10	-19	-21	-23	-31
65 - 74	229	12	-24	-27	-30	-41
75 - 84	257	12	-21	-24	-27	-38
85+ yrs	228	12	-16	-19	-22	-32
Males	256	13	-23	-26	-29	-39
white	260	13	-23	-26	-29	-40
non-white	207	7	-16	-18	-20	-27
Females	226	11	-21	-24	-27	-38
white	229	12	-22	-25	-28	-38
non-white	188	7	-15	-16	-18	-25
Area						
very large metro	324	10	-30	-32	-35	-43
large metro	255	11	-21	-23	-26	-35
small metro	232	13	-22	-25	-28	-39
large rural	209	13	-21	-24	-27	-38
small rural	201	15	-21	-25	-28	-40
Income (% poverty level)						
below	193	11	-18	-21	-24	-34
100 - 149%	212	11	-21	-24	-27	-37
150 - 199%	219	12	-20	-23	-26	-37
200 - 299%	241	12	-21	-24	-27	-38
300% and over	264	13	-25	-28	-31	-42
Hospitalized						
yes	603	15	-22	-25	-28	-38
no	128	7	-22	-25	-28	-38

Source: PPRC Simulations.

Note: [a] Excludes enrollees who did not have claims and Medicaid beneficiaries.

Table 7-6. Distribution of Beneficiaries[a] by Coinsurance Plus Balance Bill Liabilities for Physician Services

MFS with Alternative Balance Bill Limits

LIABILITIES	PERCENT OF BENEFICIARIES $1 - 100	$101 - 250	$251 - 500	$501 - 1000	> $1000
CPR Baseline	53%	23%	12%	8%	5%
MFS Balance Bill Limits					
No Limit	51	23	13	8	6
125% Limit	57	22	12	7	3
120% Limit	58	22	12	7	2
115% Limit	59	21	12	6	2

Source: PPRC Simulations.

Note: [a] Excludes enrollees who did not have claims and Medicaid beneficiaries.

nonpoor beneficiaries.[28] The decrease would also be greater for beneficiaries in major metropolitan areas. Under mandatory assignment, the complete elimination of balance billing together with changes in coinsurance liability would on average reduce beneficiaries' liability for coinsurance plus balance billing by 38 percent. The distribution of total coinsurance plus extra billing liabilities among beneficiaries would be very similar to that distribution under CPR (Table 7-6). With any of the limits, slightly fewer beneficiaries would have very large combined balance bill and coinsurance liabilities under the MFS.[29]

Tables 7-7 through 7-9 indicate the effects of various charge limits on physicians. Limiting actual charges would, on average, increase the effects of the Medicare Fee Schedule on physicians' practice revenues. However, under any of the balance billing limits simulated, Medicare income for primary care physicians would increase relative to current CPR in all but the largest metropolitan areas, and rural physicians' incomes would also increase (Table 7-8).

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[28] "Poor" beneficiaries are defined as those with incomes below the federal poverty level. The "near-poor" are those with incomes below 150 percent of the federal poverty level. The simulation methodology for estimating poverty status is described in Appendix G. In 1988, the federal poverty line was defined as $5649 for an individual over age 65 and $7126 for a couple over age 65.

[29] The PPRC simulations did not incorporate the effects of the Medicare Catastrophic Coverage Act, P.L. 100-360. That legislation establishes a cap on total deductible and coinsurance payments that a beneficiary will be liable for, effective 1990. However, catastrophic coverage will not significantly affect the results shown in Table 6, since the level of the cap ($1370 in 1990) is greater than any of the liability categories shown.

Table 7-7. Effect of the Medicare Fee Schedule on Physician Medicare Receivables[a]

Alternative Balance Bill Limits

MFS BALANCE BILL LIMITS	PERCENT CHANGE FROM BASELINE CPR ALL PHYSICIANS	MEDICAL	SURGICAL
No Limit	2	16	-6
140% Limit	-3	14	-12
130% Limit	-4	13	-14
120% Limit	-6	12	-16
110% Limit	-8	11	-18
Mandatory Assignment	-9	9	-20

Source: PPRC Simulations.

Note: [a] Receivables are Medicare-allowed charges plus balance bills.

Table 7-9 shows that with any of the balance billing limits, Medicare receivables would increase for internists and family practitioners, but would decrease for all other specialists.[30]

COMMISSION RECOMMENDATION ON THE PARTICIPATING PHYSICIAN PROGRAM

The Commission recommends that the Participating Provider and Supplier Program (PAR) and its payment differential that provides higher fees to participating physicians be continued under the Medicare Fee Schedule.

The PAR program has a particularly strong role to play in maintaining current trends toward increased assignment of Medicare claims. The Commission strongly supports the PAR program. PAR incentives for physicians to accept assignment appear to have been successful in increasing overall assignment rates.

The Commission is concerned, however, about beneficiary understanding of Medicare policies. It is especially concerned that some of the beneficiaries who most need the protection afforded by the PAR program--the poor and near poor, older beneficiaries, and those in poor health--have the most limited understanding of Medicare assignment and participation. In the next year, the Commission will examine alternatives for improving beneficiary education.

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[30] For more detail about the effects for various categories of physicians, see Chapter 9.

Table 7-8. Effect of Medicare Fee Schedule on Physician Medicare Receivables[a] by Area

MFS with Alternative Balance Bill Limits

AREA[b]	SPECIALTY GROUP	PERCENT CHANGE FROM CPR BASELINE: NO LIMIT	125%	120%	115%	MANDATORY ASSIGNMENT
All Areas	All Physicians	2	-5	-6	-7	-9
Very Large Metro						
	Medical	0	-5	-5	-6	-9
	Surgical	-16	-29	-29	-30	-33
	All Physicians	-9	-17	-18	-19	-21
Large Metro						
	Medical	14	11	10	10	8
	Surgical	-7	-16	-16	-17	-20
	All Physicians	0	-7	-8	-9	-12
Small Metro						
	Medical	19	16	15	15	12
	Surgical	-3	-11	12	-13	-17
	All Physicians	4	-2	-3	-4	-7
Large Rural						
	Medical	24	21	20	20	18
	Surgical	0	-10	-11	-12	-16
	All Physicians	11	5	4	4	1
Small Rural						
	Medical	27	25	24	24	22
	Surgical	-1	-12	-13	-15	-19
	All Physicians	13	5	5	4	0

Source: PPRC Simulations.

Note: [a] Receivables are Medicare allowed charges plus balance bills. The simulations assumed physicians collect all balance bills.

[b] Very large metro areas are MSAs of 5 million or more population; large metro are MSAs of 1 million to 5 million population; small metro includes all other MSAs. Large rural includes non-metropolitan counties of 25,000 or more population; small rural includes all other non-metropolitan counties.

Table 7-9. Effect of Medicare Fee Schedule on Physician Medicare Receivables[a] by Specialty

MFS with Alternative Balance Bill Limits

		PERCENT CHANGE FROM CPR BASELINE			
SPECIALTY	NO LIMIT	125 %	120 %	115 %	MANDATORY ASSIGNMENT
All Physicians	**2**	**-5**	**-6**	**-7**	**-9**
Medical	**16**	**12**	**12**	**11**	**9**
Internal Medicine	13	10	10	9	7
Family Practice	29	27	27	26	25
Dermatology	2	-2	-3	-4	-6
Surgical	**-6**	**-15**	**-16**	**-17**	**-20**
Ophthalmology	-11	-18	-19	-20	-23
General Surgery	-4	-15	-16	-17	-20
Orthopedic Surgery	-2	-12	-14	-15	-19
Urology	0	-10	-11	-12	-16
Thoracic Surgery	-10	-21	-22	-23	-26
Otolaryngology	6	-3	-4	-5	-8
Obstetrics/Gynecology	4	-11	-12	-13	-17
Hospital Based	**-14**	**-24**	**-24**	**-25**	**-28**
Radiology	-13	-23	-24	-24	-27
Pathology	-17	-30	-31	-32	-34
Other Physicians	**5**	**-2**	**-2**	**-3**	**-5**

Source: PPRC Simulations.

Note: [a] Receivables are Medicare allowed charges plus balance bills.

The Participating Physician Program

The PAR program was created in 1984 by the Deficit Reduction Act of 1984 (P.L. 98-369, DEFRA) to provide incentives for physicians to agree in advance to accept assignment on all Medicare claims during a year.[31] The incentives have been strengthened in subsequent legislation.

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[31] Nonphysician Part B suppliers can also participate. The focus of this chapter, however, is on physician participation.

There are several financial and administrative incentives for physicians to participate. Prevailing charges for participating physicians are currently 5 percent higher than for nonparticipating physicians. Participating physicians were permitted to increase their billed charges during the 1984-1986 fee freeze, while nonparticipating physicians were not. Since the end of the freeze, there have been MAAC limits on the actual charges of nonparticipating physicians. Current law requires carriers to process PAR claims in 17 days as opposed to 24 days for non-PAR claims. Nonparticipating physicians must inform beneficiaries in advance of the estimated extra bill for high-cost elective surgery that will be performed on a nonassigned basis. Some physicians also find that always billing Medicare directly and being assured direct payment of Medicare's share of allowed charges reduces their office's administrative burden.

Medicare publicizes the availability of participating physicians in a variety of ways. Carriers publish directories that are available to beneficiaries at no charge. Directories are sent to hospitals, Social Security offices, senior citizens' organizations, and PAR physicians themselves.[32] The "Explanation of Medicare Benefits" form sent to beneficiaries with unassigned claims informs them about participating physicians and lists a toll-free telephone number for information.

Effects of the Participating Physician Program

The PAR program appears to have increased assignment. The assignment rate has increased from 57 percent in 1983, the year before the program began, to 81 percent in 1988. In 1988, the services provided by the 37 percent of physicians who signed participation agreements accounted for more than half of Part B expenditures for physicians' services. Significantly, though, both assignment and participation rates vary dramatically among different geographic areas and specialties. Appendix E presents additional information on assignment and participation rates.

Beneficiaries' Understanding of Assignment and Participation

Beneficiaries who have a clear understanding of the Medicare program structure and cost-sharing provisions may be better able to avoid balance billing by selecting a PAR physician or a physician who will take assignment. However, PPRC's 1988 survey of beneficiaries suggests that fewer than half appear to understand the basic concepts of assignment and participation (see Appendix E). Older, poorer, and less educated beneficiaries are less likely than others to understand these concepts. Although sicker beneficiaries presumably have more experience with "the system," they do not demonstrate any better understanding than healthier beneficiaries.

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[32] The Social Security Administration annually includes an enclosure with beneficiaries' monthly social security checks informing them that the directories are available. In addition, when a hospital makes a discharge referral for outpatient care to a nonparticipating physician, it must inform the patient that the physician is a nonparticipating physician and, wherever practicable, must identify at least one qualified participating physician. Emblems advertising PAR status are given to PAR physicians for display in their offices.

COMMISSION RECOMMENDATION ON PROHIBITION OF BALANCE BILLING FOR QUALIFIED MEDICARE BENEFICIARIES

The Commission recommends that balance billing not be permitted for any Medicare beneficiary whose cost sharing is paid by Medicaid.

The Medicare Catastrophic Coverage Act of 1988 (P.L. 100-360) limits Part B cost-sharing for beneficiaries with unusually high costs for Medicare covered services. Under its provisions, Medicare will assume a beneficiary's cost-sharing payments once that beneficiary has reached an established cap on Part B expenses.[34] The catastrophic coverage legislation did not incorporate balance billing liability in the calculation of cost-sharing limits; nor did it make any provisions to eliminate balance billing for those who reach the cap and who therefore will be relieved of coinsurance liability.

The Catastrophic Coverage Act also mandated that states pay Medicare cost-sharing expenses for enrollees with incomes below the federal poverty line who would not otherwise be eligible for Medicaid.[35] [36] States will be required to pay the Medicare deductible, premium, and coinsurance for "qualified Medicare beneficiaries" (QMBs) who apply for this benefit.[37] Federal matching funds will be provided to states for this purpose on the same basis as other Medicaid expenditures. The Commission uses the term "QMB-only" to delineate a group of beneficiaries who are entitled to assistance from the Medicaid program to cover Medicare cost sharing, but who reside in states that have decided not to provide full Medicaid benefits for all residents living below the poverty line.[38]

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[34] The cap will be $1370 in 1990, the first year the out-of-pocket cap will be in effect.

[35] Previously, OBRA86 gave states the option of paying cost-sharing for eligible Medicare beneficiaries with incomes below the federal poverty line. States could also choose to provide them with full Medicaid benefits. Federal matching funds were provided for states who chose either to pay cost-sharing or to give full Medicaid benefits.

[36] Generally, to be eligible for Medicaid, an enrollee must either be eligible for Supplemental Security Income or meet the state's criteria for "medically needy."

[37] CBO estimates that 5 percent of beneficiaries--65 percent of those who qualify for it--will apply for this benefit (Christensen and Kasten, 1988).

Many of those familiar with Medicare and Medicaid assumed that balance billing would be prohibited for QMB-onlys, just as it is for Medicare/Medicaid dual eligibles.[39] In fact, the Congressional Budget Office (CBO) made this assumption in simulating balance billing changes due to catastrophic coverage. However, the catastrophic legislation does not explicitly mention balance billing policy for QMB-onlys. A recent survey sponsored by the Villers Foundation indicates that only 15 state governments plan to prohibit balance billing for QMB-onlys (Sarah Shuptrine and Associates, 1989).

The legislation's ambiguity has placed HCFA in the position of having to make a difficult policy decision. HCFA has not yet issued regulations on the QMB-only provisions of the Catastrophic Act. Preliminary instructions explicitly allow physicians to balance bill QMB-onlys.

Allowing for balance billing of QMB-onlys undermines the general goals of the catastrophic legislation's Medicaid provisions.[40] It is also inconsistent with longstanding Medicaid policy forbidding balance billing of dual eligibles.

OTHER ISSUES

The Commission is concerned about beneficiary financial protection in two areas: the appropriateness of balance billing when beneficiaries cannot choose their physician and the vulnerability of low-income beneficiaries. The Commission will continue to examine options for eliminating extra billing in cases where no meaningful choice of physician exists. While the Commission opposes any policy that would entail income-testing of Medicare benefits, it will continue to monitor the experience of low-income beneficiaries.

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[38] Although the term does not derive from legislation, HCFA used "QMB-only" in its instructions for implementing the catastrophic legislation. Currently, Medicare beneficiaries receiving some benefits from the Medicaid program can be described in three ways: dual eligibles, QMBs, and QMB-onlys. Dual eligibles are those Medicare beneficiaries receiving full Medicaid benefits. Under the clarified definition of the Technical Corrections Act of 1988, QMBs are Medicare beneficiaries who receive any benefits from the Medicaid program and who have incomes below the poverty line (including dual eligibles below the poverty line). QMB-onlys are defined here as QMBs who receive Medicaid funding only for Medicare cost-sharing expenses. States have the option of making all QMBs dual eligibles.

[39] Longstanding Medicaid policy requires that Medicaid payment be accepted as payment in full for all Medicaid beneficiaries. This policy has the effect of prohibiting balance billing of dual eligibles.

[40] Since state criteria for Medicaid eligibility vary, a beneficiary who is a QMB-only in one state could be a dual eligible in another. Different policies for QMBs and dual eligibles have the effect of treating similarly-situated beneficiaries differently.

Balance Billing When Beneficiaries Cannot Choose Physicians

In some situations, beneficiaries have little or no choice of physician. These beneficiaries may be particularly vulnerable to extra billing since they cannot "shop" for a physician who will take assignment. The Commission is particularly concerned about services provided by hospital-based physicians and emergency services, since these services generally entail limited patient choice. However, other physicians may also have de facto monopolist market power; for example, the only gynecologist in a large rural area or the only cardiologist on a hospital staff. Moreover, it could be argued that virtually all seriously ill beneficiaries have a limited choice of physician, since they are not physically capable of investigating alternatives.

Radiology, Anesthesiology, and Pathology Services. The Commission considered prohibiting balance billing for hospital-based radiologists, anesthesiologists, and pathologists. Many beneficiaries do not have the opportunity to choose these physicians. Moreover, hospital-based physicians often do not have longstanding relationships with patients and, therefore, may be unaware of patients' financial situations.

However, it is unclear to the Commission that all services provided by these physicians entail limited patient choice. In some cases, patients may have a greater degree of choice in outpatient than in inpatient services. While some hospitals contract exclusively with one group of hospital-based physicians, others contract with several. Greater patient choice may exist at multigroup hospitals.

Even in the absence of meaningful patient choice, payment regulations or competitive pressures within hospital markets may constrain charges--and consequently, extra billing.[41] The competitiveness of hospital markets for contracts with hospital-based physicians varies greatly. The differences in assignment rates among hospital-based specialties suggest that patient choice is not the only factor constraining extra billing for these services. In 1986, the assignment rate for pathology services was 75 percent, for radiology services 69 percent, and for anesthesiology, 57 percent.[42]

Emergency Services. The Commission considered an option presented by the American College of Surgeons to prohibit balance billing for surgical services provided in emergency situations. It also considered prohibiting balance billing for other emergency services and services provided by emergency physicians.[43] As a first step in clarifying the issues, the Commission will work to define emergency services in a manner that is equitable and can be easily administered.

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[41] For example, mandatory assignment for laboratory tests affects pathologists' assignment rates.

[42] PPRC analysis of 1986 BMAD 5 Percent Beneficiary File.

In principle the Commission believes balance billing should be prohibited when the beneficiary has no meaningful choice of provider. However, the Commission is not yet able to delineate clearly those services for which there is no meaningful choice of provider. Although the Commission is not prepared to issue a specific recommendation at this time, it plans to assess the feasibility of identifying services for which balance billing should be prohibited. This assessment will include discussions with Prospective Payment Assessment Commission (ProPAC) and with organizations representing physicians and beneficiaries. The Commission also wishes to assess the impact of uniform charge limits on beneficiaries who obtain emergency services or the services of hospital-based physicians before committing to the complex task of identifying services in which patient choice is particularly limited.

Balance Billing and Low-Income Beneficiaries

The Commission is also concerned about low-income beneficiaries for whom virtually any balance billing may constitute a financial burden. The Commission believes that adopting its recommendation on QMB policy will help protect all beneficiaries living below the poverty line who apply for Medicaid assistance. However, the Commission does not favor a balance billing policy that would require income-testing of Medicare beneficiaries. Such a policy would undermine the program's basic commitment to treat all enrollees equally. Several New England states have recently established income-related assignment policies. Appendix F describes these programs in detail.

Proposals for income-related assignment have divided both the medical community and beneficiaries. The American Medical Association (AMA) opposes all legislative constraints on physicians' ability to set fees, including income-related assignment. The AMA asserts that legislation of this type is unnecessary because physicians voluntarily refrain from balance billing low-income beneficiaries.[44] Actual evidence on this point is mixed; the PPRC beneficiary survey found that nearly a third of poor and near poor beneficiaries without Medicaid coverage may experience some balance billing (see Appendix E). On the other hand, the American College of

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[43] The American College of Emergency Physicians recently testified that emergency physicians have very high assignment rates (90 percent) and that they endorse the principle of prohibiting balance billing when patients have no choice of physician. The College indicated it would support a policy eliminating balance billing for emergency services if payments for emergency services are reasonable under the fee schedule (American College of Emergency Physicians, 1989).

[44] The AMA supports voluntary programs sponsored by state and local medical societies that encourage physicians to accept assignment for low income beneficiaries. These programs are described in Appendix F.

Physicians, the American Academy of Family Physicians, the American College of Surgeons, the American Academy of Otolaryngology--Head and Neck Surgery, the American Urological Association and the American Society of Anesthesiologists have endorsed income-related assignment.

Physicians who favor income-related assignment argue that it is better to make social policy decisions overtly rather than delegating them to individual physicians by default. In Vermont, the medical society proposed that income-related provisions be substituted for a bill to establish blanket mandatory assignment. In many states, medical societies have called on physicians to support voluntary programs to assist low-income beneficiaries in order to defuse pressure for universal mandatory assignment.

All beneficiary organizations that submitted testimony to the Commission--the American Association of Retired Persons (AARP), the Leadership Council of Aging Organizations, Citizen Action, and the Villers Foundation--oppose income-related assignment. These groups believe that it could undermine the entitlement nature of the Medicare program.[45] However, in the three states which have passed income-related provisions, beneficiary groups testified both in favor of and against the statutes.

Balance Billing of Beneficiaries With No Supplemental Insurance Coverage

Coinsurance and extra billing can be substantial financial burdens for beneficiaries who have neither Medicaid nor private supplemental insurance. The 1988 PPRC beneficiary survey found that 71 percent of respondents had Medicare plus private supplemental insurance[46] and 9 percent had Medicare plus Medicaid, while 20 percent had only Medicare coverage. Overall, the groups most likely to have no coverage other than Medicare are the disabled, the oldest old, non-whites, and those reporting their health status as poor.

The PPRC survey substantiates an association between income and Medigap ownership. Almost 90 percent of beneficiaries with incomes more than 300 percent of the poverty line had supplementary insurance in 1988, compared to about 64 percent for the near-poor (between 100 and 150 percent of poverty). About 28 percent of those below the poverty line had Medicaid coverage, and an additional

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[45] Some have argued that income-related policies that target a small segment of the beneficiary community may be more problematic than those that apply to a substantial proportion of beneficiaries. Prohibiting balance billing for poor and near-poor beneficiaries could lead to discrimination and access problems for this vulnerable minority. A policy encompassing the majority of beneficiaries might be less likely to result in discrimination. For example, prohibiting extra billing for beneficiaries with incomes below 300 percent of the federal poverty line would include 62 percent of beneficiaries. (U.S. Bureau of the Census, unpublished data, 1988).

[46] This figure excludes Medicaid recipients who also have private supplemental policies.

37 percent had supplemental insurance. Beneficiaries with incomes below the poverty level are the most likely to have Medicare coverage only, and those with incomes between 100 and 200 percent of the poverty level are twice as likely as higher-income beneficiaries to have no coverage other than Medicare.

However, Medigap policy ownership is not necessarily a good indicator of beneficiaries' financial or medical vulnerability. Almost two-thirds of the near poor, and over three-fourths of all beneficiaries with incomes above 150 percent of the poverty line, reported having at least one supplemental policy. Furthermore, PPRC's survey indicates that beneficiaries with only Medicare coverage are more likely to get assignment than those with Medigap. Of beneficiaries with a regular source of care (about 88 percent), those with only Medicare reported that they usually obtain care on an assigned basis more frequently than those with Medigap (65 percent to 53 percent). Those without Medigap who saw specialists also reported their last visit was assigned more often than those with Medigap (77 percent versus 67 percent). Beneficiaries without Medigap reported lower rates of balance billing on their most recent Medicare bill than those with Medigap (8 percent compared to 14 percent, respectively).

The Commission will continue to examine the financial burden of balance billing and coinsurance on beneficiaries without supplemental coverage.

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MINORITY STATEMENT ON MANDATORY ASSIGNMENT

The Commission's plan for reforming Medicare payment for physician services is comprehensive in scope and contains both long-term and transition recommendations. Because the plan proposes sweeping changes in the current system, it calls for careful monitoring of the effects of the reform on access and quality of care, both during the transition period and continuously thereafter, so that any inequities and inefficiencies in the payment system can be identified and corrected. The new payment system will begin with our best assessment of the relative amounts of physician work and other practice inputs required to produce various services using current efficient practice patterns. Over time, technological and other changes will require updating and revisions in the resource-based relative values underlying the Medicare fee schedule.

The Commission has endorsed the concept of a resource-based relative value system to guide payments for specific global services. Thus, the Medicare Fee Schedule will have the same underlying relative structure across the nation. Differences in Medicare payment levels for the same procedures will arise only through the geographic cost-of-practice index. In endorsing this principle, the Commission seeks to achieve a payment system that is easy to understand and administer, is predictable to patients and physicians, protects beneficiaries' access to care of high quality, and provides fair and adequate payment to physicians.

Toward these goals, the Commission is also proposing several changes in Medicare's assignment policy, such as limits on balance billing. The undersigned four Commissioners do not believe, however, that these changes go far enough to attain the stated objectives of payment reform. The Commission does not recommend that the final payment system should constitute payment in full, thereby prohibiting balance billing for amounts above the Medicare allowed charge. A Medicare payment system that does not provide for mandatory assignment for the claims of all beneficiaries would continue the present situation in which beneficiaries have unequal opportunities to obtain assignment and in which large out-of-pocket costs are incurred by a small percent of our sickest beneficiaries.

Beneficiaries bear substantial liabilities under the current Part B policy. This liability includes premiums, deductibles, coinsurance, taxes, and balance billing. Total beneficiary out-of-pocket liability for covered services reached an average of about $674 per beneficiary in 1987. Increases in Medicare expenditures have been growing at double-digit rates for years--a critical element of the rationale for reforms proposed by the Commission. Data obtained by the Commission on the effects of the current voluntary assignment policy, with limits on balance billing, demonstrate grave inequities among beneficiaries and heavy financial burdens on the most vulnerable of them. Specifically, the Commission staff presented data showing that 3 percent of the beneficiaries were burdened with half of the total liability for balance bills, and that their annual average balance bill exceeded $500. More than one-third of beneficiaries surveyed with incomes below the poverty line may be balance billed some of the time, and over 40 percent of the near-poor may be balance billed. The Commission also found that the sicker the patient and the larger their medical bills, the larger the liability for balance billing. This unpredictable, inequitable and financially burdensome situation is inconsistent with the principles of social insurance on which Medicare was founded almost 25 years ago. It may be ameliorated but not eliminated by the Commission's plan for payment reform. Percentage limits on balance billing still leave uneven and unfair exposure to financial liability.

The Commission has a rare opportunity to lay out a long-term plan, to be achieved incrementally, that would provide for adequate, equitable payment to physicians and meaningful financial protection of beneficiaries. Cost-sharing by beneficiaries should be predictable and within their ability to pay, but it cannot be when physicians are free to balance bill (up to some maximum limit) at their discretion. Under the Commission's proposal, fees would rise for some services and in some localities. Thus, beneficiaries in such cases will face increased coinsurance amounts. It would be inequitable to permit balance billing as well. Fees for some other services will be set at a lower but fairer fee. This will increase the likelihood that some physicians will balance bill to compensate. Even with balance billing limits in place, permitting such balance billing undermines the principle of a resource-based relative value system. As a result, beneficiaries would not gain their full share of benefits under reform.

We agree that if Congress adopts a long-term reform in physician payment, reform must include mechanisms to deal with situations where the payment formula, carefully crafted though it will be, is incorrect or inadequate to assure access to care and to obtain physician acceptance. However, the adjustment mechanism should focus on revising and correcting payment rates, not on subjecting beneficiaries to balance billing. Beneficiaries should not have to pay for miscalculations in the fee system, and their access to care should not be reduced.

We suggest that the long-range policy goal should be to create a payment system that incorporates objectives of access, financial protection, quality, and reasonable cost for beneficiaries, and adequate, equitable payment for physicians. We should design a national fee schedule that connects mandatory assignment to fair payment and work to assure that our monitoring mechanisms detect any distortions as early as possible. We recognize that we cannot move instantaneously to mandatory assignment--just as we cannot immediately establish a full-fledged fee schedule. A careful transition process is called for as the payment system is implemented. The system must be continually monitored and adjusted to assure that the goals of the program are being met. The undersigned four Commissioners will continue to urge the Commission to set mandatory assignment as a goal of the payment system. We pledge to work with our colleagues to design a payment system that will achieve the goals and principles set forth in our first report to Congress in 1987.

Commissioners:

Robert N. Butler, M.D.
Jack Guildroy
Mark C. Hornbrook, Ph.D.
Richard W. Wright

CHAPTER 8

IMPLEMENTING THE FEE SCHEDULE: TRANSITION, CONVERSION FACTOR, AND UPDATING

This chapter describes a transition to full implementation of the Medicare Fee Schedule (MFS). It then discusses how to set the initial conversion factor and recommends a process for updating the MFS and its components. While transition and updating are discussed separately in the chapter in order to describe the key aspects of each process, the distinction is somewhat artificial since the fee schedule will go through various adjustments both during the transition and afterward.

RECOMMENDATIONS

A transitional stage should begin in 1990, with full implementation of the Medicare Fee Schedule planned for 1992.

The Medicare Fee Schedule is a fundamental payment reform. Decisions on payment updates should be made independently of this basic reform.

The conversion factor should be updated annually through an expenditure target formula, so that the rate of increase of Medicare expenditures per enrollee determines in part the size of the conversion factor update.

The process used to develop the fee schedule proposal--in which the Physician Payment Review Commission seeks the input of organizations representing physicians, beneficiaries, and other affected parties and develops recommendations to the Congress--should be used for updating it as well.

THE TRANSITION

A transition would offer several advantages in moving to the Medicare Fee Schedule. More equitable payments could begin as soon as preliminary estimates of relative payments became available, but there would be time for physicians and beneficiaries to adjust to the new payment system. A transition would allow for monitoring and midcourse corrections. It would also give private payers some time to introduce payment reforms of their own. If other payers follow Medicare's lead, differences in payment rates might be reduced. This could, in turn, help ensure beneficiaries' access to care.

This section discusses the transitional stage through which Medicare would move from the current payment system to the MFS. It first lays out several criteria that should guide this transition and then outlines a transition plan that follows them.

Criteria For A Transition

The Commission has specified the following criteria to guide it in planning a transition:

- The transition should begin relatively quickly in order to gain the benefits of the fee schedule as soon as possible.
- Initial phases of the transition should involve relatively modest changes in payments in order to give physicians and beneficiaries time to adapt and to insure that Medicare does not "overshoot the mark" with changes based on a preliminary fee schedule, estimates for which are now available.
- Carriers should have the time to move to the fee schedule in a planned, orderly, and careful manner. They should not have to operate duplicate systems during the transition, and the transition should not increase Medicare's administrative burden on beneficiaries or physicians.
- Midcourse corrections should be made during the transition based on careful monitoring of the effects of initial changes and the use of more accurate data and analyses.

An Illustrative Model

Many specific transition plans might meet these criteria. Over the coming months the Commission will work with the Health Care Financing Administration (HCFA) to identify the best approach and to make recommendations to the Congress that take advantage of HCFA's extensive programmatic knowledge and administrative experience. The following model illustrates an approach that would meet the above criteria; it could form the starting point for designing a specific transition plan.

The Transition In Brief. The shift from the current payment system to the MFS would take place in a series of steps. In the first step, prevailing charges for a limited number of services and procedures would be adjusted. A ceiling on actual charges set at a uniform percentage above the prevailing charge would replace the existing complex system of maximum allowable actual charges (MAACs) for all services and procedures.

A subsequent intermediate step (or steps) would then move payments further toward MFS amounts. This step could also begin the transition from the current patchwork of charge localities to new localities based on a single set of criteria for geographic boundaries.

At the end of the transition, Medicare would pay the MFS amount for all services. All new coding policies would go into effect at this time.

Assuming enactment of fee schedule legislation by the end of fiscal year 1989 (September 30), the first step of the transition could take place in Spring 1990, and an intermediate step could occur in Spring 1991. If no further intermediate steps were used, the transition could be completed with the MFS going fully into effect in Spring 1992.

The following pages describe in more detail how this illustrative transition plan might work in relation to payment changes, balance billing policy, coding policy, and charge localities. Figure 8-1 presents details of the plan schematically.

Payment Changes. Payments to physicians would be changed in different ways at different points in the transition. In the interest of administrative simplicity, the first step of the transition would affect payments for only a relatively small number of services and procedures. Although there are some 7,000 codes in HCFA's Common Procedure Coding System (HCPCS), the 350 codes with the largest dollar volume account for approximately 80 percent of total Medicare payments to physicians. Carriers would make a special adjustment to the prevailing charge screen for these 350 codes. This adjustment to the prevailing charge, generally determined separately for each code in each charge locality, would be one-fifth of the percentage by which the average allowed charge for the service or procedure in the locality differed from the estimated MFS amount for it.[1] However, because of inconsistencies in the use of codes for evaluation and management services (see Chapter 3), these services would be treated as "families" with a single percentage adjustment applied to the prevailing charges for all services in each family.[2] For example, the Commission's preliminary simulations estimate that allowed charges for the office visit family of services (codes 90000-90080) averaged approximately 78 percent of MFS amounts in 1988, so the adjustment would increase prevailing

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[1] All first step adjustment percentages would be computed centrally, not by carriers. Part B Medicare Annual Data (BMAD) can be used for this purpose.

[2] The objective of using families would be to preserve, within each family, relative payments among the code/specialty combinations used by carriers until more appropriate relative payments can be instituted along with the Commission's recommended coding reforms.

Figure 8-1. **An Illustrative Transition Plan**

APPROXIMATE DATE	By Sept 1989	Spring 1990	Spring 1991	Spring 1992
EVENT	Fee Schedule Legislation	First Step of Transition	Second Step of Transition	End of Transition
PAYMENT CHANGES		Prevailings for 350 largest dollar volume procedures and services adjusted 1/5 of the way toward amount determined from MFS.	**Option A:** Similar to first step. **Option B:** Fees instituted for each physician; fees move from current payment levels 1/4 of way remaining to MFS.	All physicians paid MFS amount.
CONVERSION FACTOR		Set to be budget neutral. Budget policy applied through size of update to all prevailings.	Updated in accord with expenditure target results and reformulated MEI.	Updated in accord with expenditure target results and reformulated MEI.
BALANCE BILLING POLICY		Actual charge limited to a percentage above the prevailing.	Actual charge limited to a percentage above **Option A:** the prevailing. **Option B:** the area average fee.	Actual charge limited to a percentage above the MFS.
NEW CODING POLICIES				All fully effective.
CHARGE LOCALITIES			**Option A:** No change. **Option B:** Phase-in of new localities begins.	MFS based on new localities.

charges for all of these visits by 5.6 percent.[3] To take another example, the simulations estimate that allowed charges for an appendectomy (code 44950) averaged 128 percent of MFS amounts, so prevailing charges for this surgery would receive a downward adjustment of 4.4 percent on average.[4]

Carriers would apply the percentage adjustments to the prevailing charges for the 350 services/procedures after applying the annual update to prevailing charges for all 7,000 codes.[5] If an estimate of the MFS amount were not available for one of the 350 codes, no adjustment would be applied to the prevailing charges for that code in the first step of the transition. However, a correspondingly larger "catch-up" adjustment would apply in the second step. In the first step, carriers would update all customary charges as they do now.[6] This first step of the transition would take effect in Spring 1990.

The second step of the transition, which would take effect in the Spring of 1991, would take advantage of the better data and analysis available one year later and the longer lead times possible. It would be based on refined fee schedule estimates. It could also make any appropriate midcourse corrections in light of quickly observed problems arising from first step changes. In this second step, an adjustment to prevailing charges could again be used, but with the adjustment applying to all codes. For codes that had a first step adjustment, the second step adjustment would equal one-fourth the remaining percentage difference between average allowed charges and MFS amounts.[7] For services and procedures that had not had a first step adjustment, the second step adjustment would be 40 percent of the difference between average allowed charges and MFS amounts. This would bring adjustments for these services and procedures in line with the adjustment for services and procedures that had had an adjustment in the first year of the transition. As noted, services and procedures not subject to a first year adjustment would account for only about 20 percent of total Medicare payments to physicians.

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[3] That is, 5.6 percent = 1/5 x (100 percent - 78 percent) / 78 percent. Note that the data are an average for all specialties providing such visits. As Chapter 6 indicates, the actual adjustment would differ from locality to locality, with rural areas generally receiving larger increases and large urban localities smaller increases. However, in any one locality all prevailing charges for office visits would receive the same percentage adjustment.

[4] In this case, the calculation is 4.4 percent = 1/5 x (128 percent - 100 percent) / 128 percent.

[5] With this computational sequence, the percentage adjustment to prevailing charges for the 350 codes would be calculated by comparing average allowed charges with a budget neutral MFS, for any departure from budget neutrality in terms of desired total spending would be achieved by setting the update to prevailing charges for all 7,000 codes accordingly.

[6] As the transition model is further developed and refined, it may prove to be desirable to make special adjustments to customary charges for the 350 codes.

[7] This adjustment would again equal approximately one-fifth of the original difference between allowed charges and the MFS, for only about 80 percent of the original difference would remain after the first step adjustment, and one-fourth of 80 percent is one-fifth.

As an alternative in the second year of the transition, Medicare could establish a fee to be paid to each physician for each service or procedure rather than continuing a payment system that used customary and prevailing charge screens.[8] By paying each physician a predetermined fee, this alternative would achieve considerable administrative simplification.[9] It would also start the phase-in of new payment localities and would take into account differences among individual physicians in payments previously received.[10] This might avoid payment changes "overshooting the mark" as might otherwise occur.[11]

In this option, the fee for each service/procedure would equal the average charge allowed for a physician in the first year of the transition plus one-fourth the difference between this average allowed charge and the applicable MFS amount.[12] Families of evaluation and management codes would again be treated as a group in order to preserve relative payments among code/specialty combinations maintained by carriers.[13] The national fee update for 1991, determined in part by the system of expenditure targets described in Chapter 11, would be added in.[14]

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[8] Unlike fees under the MFS, these fees for a given service or procedure in the second step of the transition would differ from physician to physician. However, they would differ by less than current payments do.

[9] The Commission recommends that for the MFS, Medicare should pay physicians the fee even when their submitted charge is lower. This alternative similarly would pay the fee in the second year of the transition even if a physician's submitted charge were lower. Thus submitted charges would not affect payments, but they would be recorded for statistical purposes and in conjunction with the limit on balance billing.

[10] Only about half of all services are paid the prevailing charge; the rest are paid less.

[11] For example, some current payment localities include both rural and urban areas. As Chapter 6 shows, payments under a fee schedule would generally be higher in urban areas than in rural areas. If the transition continued to use the current charge localities, its changes to payments would reflect the geographic nature of each locality. Thus payments for a currently overpaid procedure in a geographically mixed charge locality might be cut during the transition by more than the total amount that was appropriate for the locality's urban segments.

[12] Strictly speaking, the fee would be calculated separately for each physician practice, not each physician, for the practice is the unit Medicare recognizes for payment purposes. As described previously, the appropriate fee for services and procedures that had not received a first year adjustment would be the practice's average allowed charge plus 40 percent of the difference between that allowed charge and the MFS amount. Carriers would compute practices' average allowed charges; the calculations would resemble those now used to compute each practice's customary charges. The MFS for each area would again be computed centrally, this time using new geographic localities, and supplied to carriers. Carriers would then compute the fees to be paid to each practice.

Much as is now true for customary charges, rules would be required to impute average allowed charges for new practices and for procedures a practice had not billed for in 1990. Special rules would also be required for any remaining local codes and if MFS amounts were still unavailable for a few HCPCS codes.

If further intermediate steps were desired, they should involve larger percentage adjustments because they would be based on more accurate estimates of MFS amounts. If there were no further intermediate steps, the transitional phase would end about Spring 1992. Beginning at that time, carriers would pay all physicians the MFS amount. Expenditure targets would continue to play a major role in determining the level of fees.

Balance Billing Policy. A limit on actual charges set at a fixed percentage above the prevailing charge would take effect in the first step of the transition, replacing the current system of MAACs. Such a limit would represent a significant administrative simplification for both physicians and carriers since MAACs differ from physician to physician and have no consistent relationship across services.[15]

As an option, the percentage ceiling on actual charges could move during the transition toward the percentage that is to become the final ceiling. For example, the ceiling in the first step of the transition might start out 10 or 20 percentage points above its final level, and move downward in steps, reaching its ultimate level only at the end of the transitional period when all physicians are paid the MFS amount. There are two precedents in the Omnibus Budget Reconciliation Act of 1987 (P.L. 100-203). First, for the radiology fee schedule, actual charges for services of radiologists were limited to 125 percent of the fee schedule amount in 1989, 120 percent in 1990, and 115 percent thereafter. Second, physician charges for overpriced procedures for which the prevailing charge was reduced were limited to 125 percent of the new prevailing charge plus one-half of the difference between the allowed charge and the MAAC in 1988 and to 125 percent of the reduced prevailing charge thereafter.

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[13] Technically, this might work as follows. For each family of codes, the average ratio of MFS amount to allowed charge for all services in the family would be computed for an entire charge area. Then the average allowed charge in the area for each code/specialty combination would be multiplied by this ratio to obtain a "special MFS amount" for the combination. For computing the fees for evaluation and management services to be paid to individual practices, this special MFS amount would be used as if it were the regular MFS amount.

[14] The easiest way to compute fees for each practice would be to compare average 1990 allowed charges with an MFS that was budget neutral for 1990 and then add the general update for 1991 at the end of the calculation.

[15] In one sense, however, the new limit on actual charges would not be a uniform limit on balance billing. When the customary charge screen kept the allowed charge for a physician below the prevailing charge, permissible balance billing would be larger. In contrast, a percentage ceiling applying to the lower of the prevailing charge or a physician's customary charge would constitute a uniform percentage ceiling on balance bills. However, like MAACs, its dollar maximums on allowable charges would differ from physician to physician.

Under the option that paid fees in the second stage of the transition, the percentage ceiling in that stage would be based on an area's average fee. In any case, when the transition was completed and all services were paid at the MFS amount, the ceiling would apply to that amount. The maximum balance bill for all beneficiaries then would be a uniform percentage of the amount Medicare paid.

Coding Refinements. Coding refinements described in Chapters 3 and 4 would go into effect when the MFS was fully in place at the end of the transition. Putting these refinements into effect at this time rather than earlier would provide ample lead time and save carriers the tedious task of recomputing payments to reflect the new definitions. Instead, the Medicare Fee Schedule supplied to carriers would incorporate the new definitions and its fee levels would be appropriate for these new service definitions. Carriers would, however, have two major responsibilities. They would undertake the substantial provider relations efforts needed to educate physicians about the new coding practices expected of them, and they would have to alter their internal payment review and control systems to conform to the new definitions.

Charge Localities. Under the option involving fees in the second step of the transition, the shift to new charge localities would begin in that step. Beginning the move to new localities at this time would involve very little additional work for carriers. If the second step of the transition involved an adjustment to prevailing charges, the entire shift to new localities would occur at the end of the transition.

THE CONVERSION FACTOR

A conversion factor is a multiplicative factor applied to the scale of relative work to produce a schedule of actual dollar amounts paid for physicians' work for each service or procedure. This section briefly describes the role of the conversion factor in the MFS and then presents the technical bases for setting its initial level. The process for updating it is discussed in the next section of this chapter together with other updating issues.

The Role Of The Conversion Factor

Medicare payments to physicians need to compensate for both physicians' work and the overhead costs associated with it. The Commission's recommended payment formula treats practice costs and physicians' work separately, with the conversion factor being used to calculate the portion of the payment for physicians' work. This chapter deals with the conversion factor in this context.

The Initial Level Of The Conversion Factor

Throughout its work on a Medicare fee schedule, the Commission has assumed that the conversion factor would be set initially at a level so that projected Medicare outlays under the fee schedule would equal those projected under the current payment system; in other words, the conversion factor would be "budget neutral." There are, however, important arguments for setting it either higher or lower. One reason to set it higher is the significant amount by which Medicare's payments fall short of what others pay.[16] The primary reason to set it lower is to moderate the rapid rate of cost increases for physicians' services under Part B.

The assumption of budget neutrality allows the Commission's proposals for fundamental reform to be considered separately from shorter-term budget issues and from conflicting arguments about the appropriate level of payments to physicians. The Commission views the relative value scale as a fundamental payment reform to be considered independent of budget policy. However, the actual level of fees, which the conversion factor strongly affects, must be sensitive to the resources available for the care of Medicare beneficiaries.

The illustrative transition plan described in the previous section follows the Commission's assumption of using a budget neutral initial conversion factor but would also permit a different policy decision on desired levels of total spending to be implemented. The desired level of total spending would be achieved through the national update to all prevailing charges that applied in the first step of the transition. Changes in relative payments among services would be instituted through adjustments in prevailing charges made on the basis of a budget neutral initial conversion factor.

Method For Setting The Initial Conversion Factor

The methodology for setting the initial conversion factor would be the same whether the conversion factor were set at the budget-neutral level or at a different level. The process would begin by estimating total spending for physicians' services under the current "customary, prevailing and reasonable" (CPR) payment system (or a desired level of total spending, if different from the budget neutral-level). Next, the process would estimate total physicians' practice costs and subtract this amount from the projected spending total. The difference would be the amount available for payment for physicians' work. Dividing that amount by the nationwide number of work units expected (based on the anticipated utilization of physicians' services) would then yield the conversion factor for translating physicians' work units into dollar payments for each service.[17]

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[16] For example, physicians reported in HCFA's 1983 Physician Practice Cost and Income Survey (PPCIS) that Blue Shield and commercial insurance typically paid about 85-95 percent of their billed charges for office and hospital visits while Medicare's allowed charges for these services were some 70-75 percent of billed charges. Overall, Medicare's payments have moved further below billed charges, as shown by the growth of the charge reduction rate. The same is almost certainly true on average for other payers due to the growth of health maintenance organizations (HMOs) and preferred provider organizations (PPOs).

[17] The total paid for each service would include an amount based on practice costs in addition to this amount based on the physician's work. However, physicians would receive only one, total payment for each service; component parts of the payment would not be separately identified.

Setting the initial conversion factor would require projecting the volume (and mix) of services that physicians will provide to Medicare beneficiaries in the year the transition to the Medicare Fee Schedule begins, for the last step in setting the conversion factor involves an estimate of the number of physician work units expected in the year, which depends on the utilization of physicians' services.[18] This projection of utilization will require careful attention. An error would mean that expenditures under the fee schedule would fail to match anticipated outlays for that year. Normally, the projection would be an extrapolation of past trends, but payment changes might disrupt prior trends, with actual utilization winding up substantially less or greater than expected.[19]

Predicting utilization would be facilitated by the fact that the initial conversion factor would be set at a time of relatively small payment changes during the first step of the transition. Given this situation and the uncertain effects of changes in fees on utilization, projections of utilization should not depart substantially from past trends.

After the initial conversion factor was set, it would be updated annually as described in the next section of this chapter. An expenditure target system (see Chapter 11) would play an important role in determining the size of the update and would largely offset any errors in projecting utilization after the conversion factor was initially set.

UPDATING THE FEE SCHEDULE

Once the fee schedule is implemented, it must be updated to take into account changes in technology and medical practice, beneficiary access to care, physicians' practice costs and the utilization of physicians' services. A policy for updating the fee schedule involves specifying both the decisions that have to be made and the process for reaching and implementing those decisions.

Updating Decisions

Annual updates of the fee schedule will include:

- revising the relative value scale (RVS),

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[18] Unlike the situation when the prospective payment system (PPS) went into effect, setting the conversion factor would not require accurate projection of prices. A projection of practice costs would, indeed, be required to set the conversion factor, but any error in this projection would be largely offset through an opposite error in the level of the conversion factor. As a result, outlays would closely approximate the expenditure goal if utilization projections proved correct.

[19] The Commission has heard testimony from Professor Thomas Rice of the University of North Carolina that the effects of the introduction of payments based on resource costs upon the volume of services are quite uncertain and might be large.

- refining the coding system,
- modifying geographic multipliers, and
- setting the conversion factor.

The issues involved in updating the fee schedule are both technical and political in nature. Decisions related to these issues should be guided by the same goals that shaped physician payment reform: rationalizing physician fees, protecting beneficiaries and moderating the growth in program expenditures.

Relative Payments. Changes in the relative value scale, and the coding system that underlies it, will be required in order to incorporate new services into the RVS, to increase the accuracy of relative values in reflecting physician work, and to refine estimates of physician work and practice costs with better data. Suggestions for revisions in relative values may come from physician organizations pointing out changes in the clinical approach to particular services that have a significant effect on physician work. Better data will make practice cost factors more accurate, allowing for such refinements as more precise service clusters and service-specific payments for the technical component of diagnostic services.

Review of the relative value scale will also identify the need for additional refinements in the coding system in order to incorporate new services, to improve distinctions between services provided by different specialists, and to assure that code definitions accurately reflect physician work. Policy changes affecting the use of codes, such as bundling codes for nonoperative procedures, would also be considered in the update process.

Geographic multipliers will need to be modified to take into account changes in the cost of practice among geographic areas. Refinements will also be made as data on practice costs improve. In some cases, the availability of more appropriate data (e.g., a better wage index targeted to types of employees who work in physicians' offices) could allow further improvements in the multipliers in use. As noted in Chapter 6, a better index reflecting the true costs of practice in rural areas is needed. Adjustments might also be needed to solve problems of beneficiary access.

Incremental adjustments in relative payments would be made annually, with more extensive changes occurring less often. Comprehensive review and extensive modifications in the RVS and geographic policies could take place approximately every five years in order to capture broader changes in medical practice.

Conversion Factor. The conversion factor transforms the relative value scale into a schedule of fees which, in turn, determines total spending for physicians' services along with the volume of services. Decisions about updating the conversion factor should therefore be closely linked to policies regarding future growth in service utilization and program expenditures.

As discussed in detail in Chapter 11, updates in the conversion factor should be based on the increase in an index, like a reformulated Medicare Economic Index (MEI),[20] that is adjusted according to how actual expenditures for a given year relate to an expenditure target for that year. This requires that the conversion factor be set annually.

The Updating Process

In developing its recommendations on the process for updating the fee schedule, the Commission looked both at mechanisms used in other countries and at model decision processes used in different sectors within the United States. The Commission decided that the update process should:

- be open and explicit;
- allow all groups affected by the decisions to participate in the process;
- rely on the best available data and sound technical analysis, drawing on specialized expertise when necessary;
- include monitoring of service utilization and program expenditures;
- contribute to the goals of rationalizing payments to physicians, assuring beneficiary access to quality care and controlling the rate of increase in expenditures; and
- be viewed as legitimate by all affected parties and by the Congress;

The Commission studied the experience in updating fee schedules in Canada, France and West Germany and concluded that no single approach used elsewhere can be applied in the U.S. context.[21] Keeping in mind that an appropriate process should build on existing strengths for decision making, the Commission considered four processes for updating different aspects of the fee schedule:

- a formula approach linking the conversion factor to an index of physicians' practice expenses;
- the existing regulatory rulemaking process of the Department of

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[20] The index would include both physician input and overhead costs.

[21] A comparative analysis of the fee schedule update process in France, the Federal Republic of Germany and Canada will be forthcoming in a Commission working paper by Victor Rodwin et al., entitled *Updating the Fee Schedule for Physician Reimbursement: Comparative Analysis of Selected Experience Abroad and of Policy Options for the United States.*

Health and Human Services;

- an independent commission charged with providing technical information and advice to Congress; and
- negotiation between physicians and the federal government.

It concluded that a process that combines elements of each is most compatible with American political and administrative traditions and would therefore be most effective in the U.S.

The Commission recommends that the process used to develop the fee schedule be used for updating it as well. It feels that this process has successfully accomplished the technical and policy development tasks required, while providing substantial opportunity for groups representing physicians, beneficiaries and other affected parties to participate in the decision-making process.

Under this process, Congress would set policy regarding updates in the conversion factor, changes in relative values and adjustments to the fee schedule. The Commission would continue to provide Congress with the necessary data, analysis and policy advice each year for its update decisions. Groups representing physicians, beneficiaries and others would participate in both technical refinements and major policy decisions, the Commission being the principal forum for their input. HCFA would continue as the principal implementing agency, carrying out policies within the parameters established by Congress through its administrative and rulemaking processes. Both the Commission and HCFA would monitor implementation of the fee schedule and would conduct technical analyses that could inform policy decisions.

Within this general structure, there would be different approaches to decision making for each component of the fee schedule. As described in Chapter 11, updates in the conversion factor will be linked to the rate of growth in expenditures compared to targets set by Congress. The conversion factor update would be equal to the percentage increase in the reformulated MEI if expenditures were equal to the target. If expenditures exceeded the target, the conversion factor would be increased by a lesser amount, according to a formula established through legislation. Conversely, the conversion factor would increase by more than the index for inflation and practice expenses if expenditures were lower than the target. The Commission would provide Congress with factual information and advice on setting and modifying the components of the formula, based on its analysis and consultation with physicians and beneficiaries.

Revisions in the relative value scale must be grounded in data and refined by the professional judgments of physicians to insure that they do not undermine the use of resource costs as the basis for the fee schedule. This will entail targeted data collection related to physician work and practice costs to supplement existing information, refinements in methods for incorporating data into the relative value scale, consultation with organizations representing physicians, and the use of physician consensus panels to review the reasonableness of the data and to assure that policy decisions are clinically relevant.

During the next year, the Commission will focus its efforts on evaluating further results from the second phase of the Hsiao study and refining estimates of relative values to be incorporated into the fee schedule. It will continue to work closely with physicians both as individual participants on consensus panels and through the organizations that represent them.

The Commission has begun to explore different ways of structuring the process through which the medical profession would advise it on updating the RVS, once it is implemented. In many countries, physicians channel their input through one or two organizations. In the United States, the American Medical Association provides the mechanism for developing policy for all physicians in some cases (e.g., the AMA-sponsored CPT coding system; the AMA/Specialty Society Medical Liability Project), while specialty societies choose to work independently in others. Specialty societies have increasingly gone directly to Congress, and more recently to the Commission, with their concerns. Some argue that a more coordinated approach in which physicians work through a single organization to develop their input to the Commission is both more efficient and in the best interests of the profession as a whole. Others consider the current process--in which specialty societies work both through umbrella organizations and independently--to be more effective in representing their interests.

The Commission will seek direct physician input into its analysis of coding issues through both physician surveys and consensus panels, as it has done in its work on surgical global services and coding for evaluation and management services. In cases where specific codes or their definitions must be modified, the Commission will work collaboratively with the AMA-sponsored CPT Editorial Panel to develop mutually acceptable refinements to the CPT coding system.

The Commission will obtain more precise and current data on the costs of practice in different localities in order to refine the index used in setting the geographic multipliers. It will also monitor beneficiary access to care under the fee schedule and suggest necessary revisions in relative values, geographic multipliers and the conversion factor based on its findings. As with all the recommendations it develops, the Commission will seek the views of physicians and beneficiaries in identifying issues and developing its annual recommendations to Congress.

Updating components of the fee schedule will become a major activity of the Commission once the fee schedule is implemented. The Commission plans to combine the task of maintaining the new payment method with its continued work on reforms to further strengthen Medicare policy.

CHAPTER 9

THE IMPACT OF THE MEDICARE FEE SCHEDULE ON BENEFICIARIES AND PHYSICIANS

The policy changes brought about by the Medicare Fee Schedule would affect both beneficiaries and physicians. This chapter reviews the effects of replacing Medicare's customary, prevailing, and reasonable (CPR) payment method with the Medicare Fee Schedule (MFS). It describes the impact of the MFS on payments for important services, beneficiaries' coinsurance and balance bills, and total payments to physicians by specialty and by location.

THE SIMULATION MODEL

The chapter presents findings from simulations that compare CPR payments and beneficiary liabilities during 1988 to estimated payments and liabilities under the MFS.[1] Payments per service under the MFS are a product of several factors: the Commission's relative value scale (RVS), geographic and other adjustment factors, and a monetary conversion factor. The simulations incorporate a conversion factor that is budget neutral, making total payments to physicians under the MFS the same as under CPR.

The fee schedule that is simulated incorporates the following specifications:

- estimates of relative work from the Hsiao study, when available, including estimates for evaluation and management services;[2]
- a uniform global service definition for surgery;
- an additive formula for incorporating practice costs into the MFS with practice costs derived from specialty-specific cost ratios different from those used in the Hsiao study;

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[1] The effects of the Medicare Catastrophic Coverage Act of 1988 are not included in the simulations.

[2] For a discussion of the limitations of the Hsiao estimates of relative work values for evaluation and management services, see Chapter 3.

- no adjustment for the opportunity cost of specialty training;
- geographic multipliers reflecting variation in prices of nonphysician inputs;
- charge locality boundaries conforming to metropolitan statistical areas (MSAs) and nonmetropolitan areas of each state;
- continuation of the participating physician program and its payment differential;
- Medicare payment at the fee schedule amount regardless of physicians' submitted charges; and
- a limit on physician charges at 120 percent of the fee schedule amount.[3]

The Commission has not recommended a specific limit on submitted charges. The 120 percent limit was chosen for illustrative purposes because it falls between the limits that Congress previously set for overvalued procedures and radiology services (see Chapter 7). The submitted charge limit does not affect simulation estimates of the impact of the MFS on Medicare allowed charges, program payments or beneficiary coinsurance. However, the limit does affect estimates of the MFS impact on beneficiaries' balance bill liabilities and physicians' total practice revenues.

The simulations assume no change in the behavior of physicians and Medicare beneficiaries in response to the fee schedule. No adjustment is made for possible shifts in physicians' assignment rates or participation decisions. Also, no adjustment is made for possible changes in the volume or mix of services sought or received by beneficiaries in response to changes in payments. Appendix G contains a detailed description of the simulation methods and data base development.

THE MEDICARE FEE SCHEDULE

Implementing the budget neutral MFS would substantially increase payments for some procedures and substantially reduce payments for others. This would occur because relative charges for some procedures (the basis of the CPR system) differ from relative resource costs (the basis of the MFS). An exhaustive analysis of MFS effects on payments for each procedure in the simulation is not feasible. However, a small number of procedures account for a disproportionate share of total Medicare program payments for physician services. MFS effects on selected evaluation and management (EM) services, surgical procedures and diagnostic

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[3] Chapter 7 reports the impacts of different options, ranging from no limits to mandatory assignment. This Chapter uses 120 percent for illustrative purposes only.

Table 9-1. National Mean Payments for Selected Procedures

Medicare Fee Schedule and CPR Payments[a]

		CPR $	MFS $	Change %
Evaluation and Management				
90050	limited office visit	23	28	24
90060	intermediate office visit	28	35	26
90250	limited hospital visit	26	33	28
90260	intermediate hospital visit	30	40	34
90620	comprehensive consultation	93	104	12
92014	eye exam and treatment	42	39	-6
Surgery				
27130	total hip replacement	2404	1985	-17
27244	repair femur fracture	1299	1198	-8
33512	coronary artery bypass	3894	2828	-27
35301	rechannel of artery	1573	1172	-26
44140	partial removal of colon	1256	1072	-15
49505	repair inguinal hernia	588	414	-30
52601	prostatectomy (*TUR*)	1128	921	-18
66984	remove cataract, insert lens	1467	1164	-21
Diagnostic				
52000	cystoscopy	105	110	5
70470	contrast CAT scans of head	113	82	-27
71010	x-ray exam of chest (1 view)	12	10	-16
93000	electrocardiogram, complete	35	25	-28

Source: PPRC Simulations.

Note: [a] Fees are for procedures performed by the most common specialty in the most common place of service.

procedures accounting for a large fraction of Medicare payments should illustrate the effects on all procedures in those categories.[4]

Table 9-1 shows Medicare allowed charges for 18 selected procedures under the two payment systems.[5] The allowed charges for office and hospital visits would increase by 24 to 34 percent under the MFS. The allowed charges for various surgical and

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[4] The 18 selected procedures in Table 9-1 accounted for 29 percent of Medicare program payments for physician services in 1986.

[5] The allowed charge is the amount the Medicare program approves as payment for a procedure. The program pays 80 percent of the allowed charge and the beneficiary pays the remaining 20 percent. In addition, the beneficiary is responsible for any unmet deductible payment and for any balance bill if the claim is not assigned.

Table 9-2. Beneficiaries'[a] Liabilities for Coinsurance Plus Balance Bills Under the Medicare Fee Schedule

120% Balance Bill Limit

	DOLLARS OF SPENDING PER BENEFICIARY AND PERCENT CHANGE FROM CPR					
	TOTAL		BALANCE BILL		COINSURANCE	
All	**$179**	**-25%**	**$32**	**-65%**	**$147**	**0%**
< 65 yrs	186	-21	24	-69	162	3
65 - 74	167	-27	32	-65	135	-2
75 - 84	195	-24	35	-63	160	0
85+ yrs	184	-19	29	-64	155	5
Males	**190**	**-26**	**34**	**-65**	**156**	**-2**
white	192	-26	36	-65	156	-2
non-white	170	-18	18	-67	152	0
Females	**171**	**-24**	30	-65	**141**	**1**
white	172	-25	31	-65	141	1
non-white	157	-16	17	-67	140	3
Area						
very large metro	219	-32	36	-69	183	-12
large metro	196	-23	31	-65	165	-1
small metro	175	-25	33	-64	142	1
large rural	158	-24	30	-65	129	3
small rural	151	-25	31	-64	120	6
Income (% poverty level)						
below	153	-21	24	-65	129	4
100 - 149%	161	-24	29	-64	133	1
150 - 199%	168	-23	30	-64	138	2
200 - 299%	183	-24	33	-64	150	1
300% and over	191	-28	37	-64	154	-3
Hospitalized						
yes	452	-25	79	-66	373	1
no	97	-25	18	-63	79	-2

Source: PPRC Simulations.

Note: Excludes enrollees who did not have claims and Medicaid beneficiaries.

[a] Areas are assigned by beneficiary's residence. Very large metro areas include counties in MSAs of 5 million or more population; large metro areas include counties in MSAs of 1 million population; small metro area are all other metropolitan counties. Large rural (non-metropolitan) counties have population of 25,000 or more; small rural includes all other non-metropolitan counties.

diagnostic procedures (e.g., hernia repair, CAT scan, and electrocardiogram) would decrease by approximately 30 percent.[6] The MFS effects reported for the selected procedures probably would be typical of the effects for other procedures in these categories. Medicare program payments for all evaluation and management services in the simulation would be 28 percent greater under the MFS, payments for all surgical services would be 17 percent less under the MFS, and payments for all imaging services would be 21 percent less under the MFS than under the current CPR system.

EFFECTS ON BENEFICIARIES

Implementing the Medicare Fee Schedule with a 120 percent charge limit would affect beneficiaries' spending for coinsurance plus balance bills. The Commission analyzed the effects on all beneficiaries, categories of beneficiaries, and individual beneficiaries.[7] The simulations examine only the impact of the MFS on beneficiaries' coinsurance plus balance bills for Medicare-covered physician services. Beneficiaries would face greater total out-of-pocket costs than are shown in the following tables.[8]

Overall Effects on Beneficiaries

The Medicare Fee Schedule would have no impact on coinsurance but a significant impact on balance bills for all beneficiaries as a group. Because the MFS is budget neutral, it does not change the average coinsurance. For beneficiaries in the aggregate, balance bills, as well as the total of balance bills plus coinsurance, would decline significantly (Table 9-2). The magnitude of the decline in balance bills depends on physicians' responses to the fee schedule. These responses are difficult to predict.

Effects by Beneficiary Category

The impact of implementing the MFS with a 120 percent limit on submitted charges varies across categories of beneficiaries. Changes in coinsurance for beneficiaries in the different categories would be moderate, with the exception of changes by area of residence. In very large metropolitan areas, beneficiary coinsurance would decline by 12 percent; conversely, in small rural areas, it would increase by 6 percent. Nonetheless, the average spending on coinsurance by beneficiaries living in small rural areas ($120) would still be lower than the average spending by beneficiaries in very large metropolitan areas ($183).

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[6] These results are different than those reported by Hsiao, et al. (1988) due to the changes in work values for evaluation and management services, different practice cost estimates, extrapolation methods and the incorporation of policy changes occurring between 1986 and 1988. In addition, Hsiao assumed that the ratio of practice costs to physician revenue would be the same for each specialty under a fee schedule as it is now. This assumption resulted in a large overstatement of changes in charges in Hsiao's published results (see Chapter 5).

[7] The Commission examined the impact by beneficiary categories including age, race, sex, poverty level, residence, and hospitalization status.

[8] The Congressional Budget Office estimated that beneficiaries averaged $561 total Medicare out-of-pocket expenses in 1987 (U.S. Congress, House, Committee on Ways and Means, 1988: 181). Medicare out-of-pocket expenses include Part A and Part B deductibles, coinsurance and balance bills. Beneficiaries also have additional non-Medicare health expenses (Waldo and Lazenby, 1984).

Because Medigap policies generally cover Medicare coinsurance, beneficiaries who own those policies would pay lower coinsurance under both CPR and MFS than shown in Table 9-2. The average coinsurance payment adjusted for Medigap coverage is $42 as compared to $147 without the adjustment. However, Medigap-adjusted coinsurance varies across beneficiary category because Medigap ownership rates and coinsurance spending itself vary by category. For example, after adjusting for Medigap coverage, beneficiaries younger than 65 years of age would pay an estimated $103 under the MFS, while those 65-74 years old would pay an estimated $32 under the MFS. The percent change in Medigap-adjusted coinsurance from CPR to MFS is the same as that for the unadjusted coinsurance.

Under the MFS with a 120 percent limit on submitted charges, beneficiaries' balance bill amounts would decrease significantly. The percent decrease in balance bills for beneficiaries in different economic and demographic categories would be similar. Given that no changes in assignment decisions by physicians are incorporated in the simulations, the balance bill reductions may differ from those reported in Table 9-2.[9]

Beneficiary spending for coinsurance plus balance bills would decline due to the limit on submitted charges. The decline would not be uniform, but would vary across categories of beneficiaries. For example, liabilities of beneficiaries who are 65-74 years old would decline more in percentage terms than spending by those age 85 years old or older.

Medigap premiums, typically between $500 and $700 per year, would remain the same for most beneficiary categories. They might change by geographic area as payments and coinsurance change to reflect the fee schedule's geographic multipliers.

Effects on Individual Beneficiaries

The impact on individual beneficiaries varies from the average impact for all beneficiaries shown in the previous tables. Tables 9-3 and 9-4 describe the distribution of coinsurance plus balance bill liabilities among beneficiaries. Table 9-3 shows that the MFS with a 120 percent submitted charge limit would reduce the fraction of beneficiaries paying large balance bills. For example, fewer beneficiaries would have balance bills greater than $500 under the MFS (1 percent) than under CPR (4 percent). A comparison of coinsurance plus balance bills shows that the proportion of beneficiaries paying more than $500 would also decline under the MFS, while the proportion paying less than $100 would increase. The changes in the distribution of total liabilities are due mostly to the limit on balance bills.

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[9] It has been argued that the effects of those physicians with lower payments under the fee schedule who stop taking assignment will outweigh the effects of those with higher payments who begin taking assignment. If that were to happen, the reductions in balance bills would be smaller than reported in Table 9-2.

Table 9-3. Distribution of Beneficiaries by Liabilities for Coinsurance Plus Balance Bills

120% Balance Bill Limit

Expenses	Percent of Beneficiaries by Liabilities $ 0	1 - 100	101 - 250	251 - 500	501 - 1000	> 1000
Coinsurance						
CPR	0	65	18	10	5	2
MFS	0	63	20	11	5	1
Balance Bills						
CPR	29	53	10	5	3	1
MFS	37	55	6	2	1	0
Total[a]						
CPR	0	53	23	12	8	5
MFS	0	58	22	12	7	2

Source: PPRC Simulations.

Note: Excludes enrollees who did not have claims and Medicaid beneficiaries.

[a] Total is the sum of coinsurance plus balance bills.

Table 9-4 provides additional data on changes in beneficiary liabilities for coinsurance and balance bills. While some beneficiaries would have slightly higher liabilities than they do under CPR, almost three-quarters of the beneficiaries would have lower liabilities under the MFS than under CPR. Only one-quarter of the beneficiaries whose liabilities would increase would have increases larger than $25.

EFFECTS ON PHYSICIANS BY SPECIALTY

The effects of the MFS would not be uniform across specialties or among physicians within a particular specialty.[10] Differences in the impact of the MFS among specialties would be due largely to changes in relative values and differences in service mix.[11] MFS effects within specialties reflect differences in service mix among physicians as well as the effects of the geographic multiplier.

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[10] The unit of analysis for the physician simulations is a practice, not an individual physician. The term "physician" in the text actually refers to a practice of one or more individuals with the same Medicare billing identification number.

[11] Chapter 2 explains how relative values differ between a cost-based RVS and current charges, and how this would affect specialties and physicians' practice revenues because of differences in the composition of practices or "service mix."

Table 9-4. Distribution of Beneficiaries by Changes in Coinsurance Plus Balance Bills

Medicare Fee Schedule with 120% Limit

CHANGE FROM CPR	PERCENT OF BENEFICIARIES WITH DECREASES	WITH INCREASES
$ 1 - 10	25	16
11 - 25	13	5
26 - 50	11	3
51 - 100	10	2
101 - 251	8	1
251 - 1000	5	0
> 1000	1	0
Total	73	27

Source: PPRC Simulations.

Note: Excludes enrollees who did not have claims and Medicaid beneficiaries.

Total payments to physicians whose practices consist largely of EM services would increase under the MFS. Conversely, total payments to physicians whose practices consist largely of surgical or diagnostic procedures would likely decline. Estimated MFS payments (Table 9-5) to physicians in medical specialties would be 20 percent greater than comparable payments under the CPR system; payments to surgical specialists would be 11 percent lower; and payments to pathologists and radiologists would be 25 percent and 21 percent lower, respectively, under the MFS.[12]

While the effects of the Medicare Fee Schedule are similar for the two hospital-based specialties, radiology and pathology, they vary among surgical and medical specialties. For example, changes in total payments to surgical specialties in the simulations range from a 6 percent increase in payments to otolaryngologists to 16 and 20 percent reductions in payments to ophthalmologists and thoracic surgeons, respectively. The increase in total payments to family practitioners (38 percent) would be more than twice the increase in payments to internists (17 percent).

Differences in service mix explain some of the variation in MFS effects among specialties. Surgical specialties for which EM services represent a greater fraction of total payments would likely realize smaller losses in payments under the MFS.

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[12] In this chapter, "medical" and "surgical" refer to specialties meeting three conditions: they were surveyed in Phase I of the Hsiao study; they are among the top 25 specialties in terms of total Medicare program expenditures; and they posed no special data problems. Medical specialties meeting the conditions are: internal medicine, family practice, and dermatology. Surgical specialties meeting the conditions are: ophthalmology, general surgery, orthopedic surgery, urology, thoracic surgery, otolaryngology, and obstetrics/gynecology. Anesthesia, an important hospital-based specialty, was excluded from the simulations because of difficulties in computing average allowed anesthesia charges for single episodes of surgery from Medicare claims data.

Table 9-5. Change in Medicare Payments[a] by Specialty Under the Medicare Fee Schedule

SPECIALTY	PERCENT CHANGE
Medical	20
Internal Medicine	17
Family Practice	38
Dermatology	1
Surgical	-11
Ophthalmology	-16
General Surgery	-10
Orthopedic Surgery	-7
Urology	-5
Thoracic Surgery	-20
Otolaryngology	6
Obstetrics/Gynecology	2
Hospital Based	*(na)*
Radiology	-21
Pathology	-25
Anesthesia	*(na)*
Other Physicians[b]	4

Note: [a] Does not include balance bills.

[b] Other Physicians includes physician specialties with data problems and those not evaluated in the Hsiao study: cardiovascular disease, clinic, general practice, gastroenterology, nephrology, neurology, neurosurgery, plastic surgery, psychiatry, and pulmonary disease.

For example, reductions in payments to otolaryngologists would probably be smaller than reductions in payments to thoracic surgeons. Nearly 50 percent of payments to otolaryngologists are for medical services, while only 43 percent of payments are for surgical procedures. The corresponding figures for thoracic surgeons are 5 percent and 93 percent, respectively.

Differences in the proportion of total payments from medical and surgical services could explain some of the difference between MFS effects among medical specialties. For example, medical services account for a somewhat greater share of total payments to family practitioners (88 percent) than to internists (79 percent).

Table 9-6. Percent Distribution of Physician Practices[a] by Percent Change in Payments, by Specialty

Total MFS Effect

Specialty	PERCENT CHANGE IN PAYMENTS[b] LOSS > 50 %	 26 - 50	 11 - 25	 0 - 10	 GAIN 0 - 10	 11 - 25	 26 - 50	 > 50 %
Medical	**0**	**2**	**5**	**7**	**16**	**25**	**30**	**16**
Internal Medicine	0	1	5	8	19	28	29	10
Family Practice	0	0	1	3	6	17	37	36
Dermatology	0	9	20	16	12	19	15	8
Surgical	**0**	**13**	**39**	**23**	**13**	**8**	**3**	**2**
Ophthalmology	0	13	60	18	6	2	1	0
General Surgery	1	15	28	24	16	9	5	2
Orthopedic Surgery	0	4	31	32	21	8	3	0
Urology	0	8	22	32	17	18	2	2
Thoracic Surgery	0	41	36	11	3	3	0	6
Otolaryngology	0	2	13	22	17	24	16	6
Obstertrics/Gynegology	0	4	21	20	25	14	8	9
Hospital Based	**1**	**31**	**48**	**9**	**4**	**5**	**1**	**1**
Radiology	1	29	51	8	5	4	0	1
Pathology	5	45	21	15	2	6	5	1
All Physicians	**0**	**9**	**23**	**15**	**13**	**15**	**14**	**9**

Source: PPRC Simulations.

Note: [a] Practices are weighted by payments under the MFS.

[b] Percent loss or gain under MFS are with respect to 1988 allowed charges under CPR system, exclusive of balance bills.

Under the MFS, payments to family practitioners would increase the most of all medical specialties.

The elimination of specialty distinctions in payment for total work by procedure could also contribute to the disparity between MFS effects on total payments to internists and family practitioners. Implementing the MFS would increase the level of payments for EM services for physicians in all specialties. At the same time, it would close the gap between Medicare payments for EM services by internists and family practitioners that characterize the CPR payment system.

Geographic payment policy explains only a small fraction of the MFS impact on total payments to a specialty. Effects attributable only to changing relative values (pure RVS effect) would be approximately the same as the combined effects of the

Table 9-7. Distribution of Physician[a] Practices by Percent Change in Payments, by Specialty

Pure RVS Effect

	PERCENT CHANGE IN PAYMENTS[b]							
	LOSS				GAIN			
SPECIALTY	> 50 %	26 - 50	11 - 25	0 - 10	0 - 10	11 - 25	26 - 50	> 50 %
Medical	0	0	2	6	11	45	36	1
Internal Medicine	0	0	2	4	12	60	22	0
Family Practice	0	0	0	0	0	3	93	4
Dermatology	0	0	3	47	36	12	2	0
Surgical	0	3	53	30	8	4	2	0
Ophthalmology	0	0	86	11	1	1	0	0
General Surgery	0	0	59	22	9	6	3	0
Orthopedic Surgery	0	0	25	64	8	2	1	0
Urology	0	0	9	76	12	1	2	0
Thoracic Surgery	0	35	46	10	2	6	0	0
Otolaryngology	0	0	1	30	40	22	4	3
Obstertrics/Gynegology	0	0	15	40	20	17	10	0
Hospital Based	0	22	73	5	0	0	0	0
Radiology	0	20	75	5	0	0	0	0
Pathology	0	42	56	2	0	0	0	0
All Physicians	0	4	29	18	10	20	18	1

Source: PPRC Simulations.

Note: [a] Practices are weighted by payments under the MFS.

[b] Percent loss or gain under the MFS are with respect to national average charge fee schedule with geographic adjustment.

RVS and the geographic payment policy reported in Table 9-5.[13] One exception is family practice, whose membership is relatively concentrated in rural areas. For that specialty, the geographic policy could increase average payments by as much as 5 percent (see Chapter 6).

Within-Specialty Effects

Under the MFS, total payments to some physicians in a specialty would increase while payments to others would decrease. This would be true in varying degrees for all specialties in the simulations. For example, while total payments to most physicians in the medical specialties would increase, payments to approximately 14 percent would decrease (Table 9-6). Likewise, while total payments to most surgeons would decline, total payments to approximately 26 percent would increase. Even among the hospital-based physicians, who would be subject to the greatest reductions in total payments, MFS effects would vary widely. In the simulations, total payments to 10 percent of radiologists and 14 percent of pathologists would increase.

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[13] Pure RVS effects are from a simulation (not shown) comparing total specialty payments under a national average charge-based fee schedule and under the MFS, both having the same geographic adjustment.

Two factors explain the variation in MFS effects among physicians within a specialty: service mix and geographic payment policy. The impact of service mix (the pure RVS effect) was isolated by comparing payments to physicians under two fee schedules: a national average charge fee schedule and the MFS, both incorporating the geographic multiplier recommended in Chapter 6. The greater the variation in service mix among physicians in a specialty, the greater would be the variation in effects of the fee schedule among them.

Table 9-7 reports the proportion of physicians in each specialty who would realize a change of a given size in their payments due to the pure RVS effect. If service mix were homogeneous among all physicians in a specialty, the distribution of physicians would be relatively concentrated, with most physicians realizing approximately the same change in payments between the two fee schedules. Conversely, if service mix varies among physicians in a specialty, the pure RVS effect on payments would likewise vary.

The distributions of the impacts of the RVS would be concentrated for some specialties: family practice, ophthalmology, radiology, and pathology. Service mix would not be an important cause of variation in MFS effects within those specialties. Within other specialties, e.g., internal medicine, thoracic surgery and otolaryngology, the distributions would be more dispersed.

MFS Effects on Total Practice Revenues

While payments by the Medicare program are an important source of practice revenue, they are not the only source. Balance billing for Medicare services and revenues from other payers also contribute. Consequently, the effect of the MFS on total practice revenues from all sources would be less than the effect on the Medicare portion alone. The magnitude of the effect would depend on the proportion of revenues derived from Medicare. Estimates of that proportion vary from 4 percent for obstetrics/gynecology, to around 20 percent for family practice, to over 40 percent for ophthalmology and thoracic surgery (Paxton, 1987). Fee schedule effects on physicians' revenue from all payers reflect this variation (Table 9-8).[14] The MFS effects range from increases of 4 percent and 6 percent in total practice revenues of family practitioners and internists to a 9 percent reduction in total practice revenues of thoracic surgeons. These changes would be larger if private insurers also adopt the MFS or a similar payment method.

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[14] Medicare receipts were computed under the assumption that changes in payments do not affect assignment rates and that balance bills are collected. Receipts from all payers are based on specialty-specific ratios of Medicare revenues to gross practice revenues (Paxton, 1987).

Table 9-8. Impact on Physician Medicare and Total Revenues by Specialty

Medicare Fee Schedule with 120% Balance Bill Limit

Specialty	Percent Change in Practice Revenues from Medicare[a]	Percent Change in Practice Revenues from All Sources[b]
Medical		
Internal Medicine	17	4
Family Practice	38	6
Dermatology	1	*na*
Surgical		
Ophthalmology	-16	-8
General Surgery	-10	-5
Orthopedic Surgery	-7	-3
Urology	-5	*na*
Thoracic Surgery	-20	-9
Otolaryngology	6	*na*
Obstetrics/Gynecology	2	0
Hospital Based		
Radiology	-21	-7
Pathology	-25	*na*

Source: PPRC Simulations.

Note: [a] Medicare program payments are exclusive of balance bills.

[b] Includes revenues from all payers. Medicare assignment rates assumed to be unaffected by MFS and 100% of balance bills are assumed to be collected. Estimates of non-Medicare revenues are unavailable for some specialties.

EFFECTS ON PHYSICIANS BY GEOGRAPHIC AREA

The MFS is adjusted by geographic multipliers so that fees in different localities vary with differences in an overhead-only index of nonphysician input costs (see Chapter 6). Implementing the MFS would redistribute Medicare payments from metropolitan to rural areas (Table 9-9). However, the reduction in payments to physicians in all metropolitan areas combined would be small (3 percent) in contrast to the increase in payments to physicians in all rural areas combined (14 percent).

In each of the defined geographic area categories, payments to surgical specialists would decline under the MFS, while payments to medical specialists would increase. The one exception would be in very large metropolitan areas, where payments to medical specialists would decline slightly.

Table 9-9. Change in Payments by Geographic Area

Medicare Fee Schedule

AREA[a]	SPECIALTY GROUP	PERCENT CHANGE
Very Large Metro		
	Medical	-1
	Surgical	-25
	All physicians	-14
Large Metro		
	Medical	17
	Surgical	-12
	All physicians	-3
Small Metro		
	Medical	26
	Surgical	-7
	All Physicians	3
Large Rural		
	Medical	30
	Surgical	-6
	All Physicians	12
Small Rural		
	Medical	37
	Surgical	-7
	All Physicians	14

Note: [a] Very large metro areas include counties in MSAs of 5 million or more population; large metro includes counties in MSAs of 1 million to 5 million population; small metro area are all other metropolitan counties. These areas accounted for 14, 37, and 33 percent respectively of Medicare allowed amounts in 1988. Large rural (non-metropolitan) counties have population of 25,000 or more; small rural includes all other non-metropolitan counties. These areas accounted for 9 and 7 percent, respectively of Medicare allowed amounts in 1988.

In each geographic area, total Medicare payments to some physicians would increase under the MFS, while payments to others would decrease (Table 9-10). Across all areas combined, payments to approximately half of all physicians would increase while payments to the other half would decline. However, the proportions would be different within the five defined metropolitan and rural area categories.

Table 9-10. Distribution of Physicians Practices[a] by Percent Change in Payments, by Geographic Area

Medicare Fee Schedule

	PERCENT CHANGE IN PAYMENT							
	LOSS				GAIN			
AREA[b]	> 50 %	26 - 50	11 - 25	0 - 10	0 - 10	11 - 25	26 - 50	> 50 %
Very Large Metro	1	24	29	12	12	12	7	3
Large Metro	0	8	25	17	17	16	12	5
Small Metro	0	6	21	16	16	16	15	10
Large Rural	0	4	16	12	13	14	23	18
Small Rural	0	2	19	8	13	15	20	23
All Areas	0	9	23	15	13	15	14	9

Source: PPRC Simulations.

Note: [a] Physician practices weighted by payments under the MFS.

[b] Very large metro areas include counties in MSAs of 5 million or more population; large metro areas include counties in MSAs of 1 million population; small metro area are all other metropolitan counties. Large rural (non-metropolitan) counties have population of 25,000 or more; small rural includes all other non-metropolitan counties.

In the large and small rural areas respectively, total payments to a majority of physicians would increase. The proportionate increases would be in the moderate-to-large range in most cases.

The patterns of increases and decreases are somewhat more symmetric in the large and small metropolitan areas. The proportion of physicians whose payments would increase would approximately equal the proportion whose payments would decrease in these areas.

Finally, in very large metropolitan areas, where decreases in total payments in the aggregate would be greatest, most reductions would be in the small-to-moderate range. Furthermore, total payments to many physicians in very large metropolitan areas would increase under the MFS.

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CHAPTER 10

MONITORING ACCESS UNDER THE FEE SCHEDULE

Physician payments under the Medicare Fee Schedule (MFS) developed by the Commission will diverge considerably from payments under the CPR system. Fees for evaluation and management services generally will increase, while fees for many procedural and invasive services will decrease. The Commission also recommends that changes in the relative payments for services be accompanied by limits on balance billing and calls for expenditure targets to moderate the growth in Medicare expenditures.

Payment reform could be accompanied by behavioral responses on the part of both physicians and beneficiaries that could affect beneficiary access to physician services. These responses will be influenced by both the changes in Medicare's fee structure and the overall level of Medicare fees relative to those paid by other insurers. The number of physicians who choose to be participating physicians, assignment rates, physician choices of specialty and practice location, and physician willingness to care for Medicare patients could change. While the Medicare Fee Schedule could generally improve access, physician decisions about balance billing, in conjunction with increased coinsurance for services with increased fees under the fee schedule, could raise beneficiaries' financial burden. Beneficiaries in turn could respond to higher out-of-pocket payments by reducing their use of physician services.

Because our understanding of the behavioral responses to payment reform is incomplete, monitoring beneficiary access under the Medicare Fee Schedule is essential. Special attention should be given to beneficiaries' financial burden and how it affects their decisions to seek care. The information obtained through the monitoring process can be used to help refine, adjust, and update the Medicare Fee Schedule. Access problems could be addressed by adjusting specific relative values, the conversion factor, and/or the geographic multiplier.

RECOMMENDATIONS

The Medicare program should devote greater efforts to monitoring access to care and the degree of financial burden experienced by beneficiaries.

Information gathered on access to care should be integrated into the annual update process.

DEFINING ACCESS

The Commission defines access broadly. Drawing on the work of Andersen, Aday, and their colleagues at the University of Chicago, the concept of access used by the Commission encompasses those factors which are related to a population's ability to enter the health care system when they need care. This ability is influenced by characteristics of the delivery system itself, such as the number and organization of health care providers. It is also influenced by characteristics of the individuals that make up the population, such as their age, frailty, income, insurance coverage, education, and race. For example, poor persons who lack insurance are less likely to have good access than middle-class persons with generous coverage.

It is also important to use indicators that tell whether potential access becomes realized access. Utilization rates are one such indicator, as are measures of satisfaction with care. Table 10-1 summarizes the characteristics of individuals that indicate their potential for good or poor access and the utilization and satisfaction measures that can be used to determine whether this potential is realized. Operationally, many researchers believe that the single best measure of access is the level of use of services in relation to need (e.g., health status) (Aday and Andersen, 1981; Vladeck, 1981; Freeman, Blendon, and Aiken, et al., 1987).

Special attention should also be given to variables that can be influenced by policy, because they are the instruments by which perceived inequities or deficiencies in access can be addressed (Aday, Fleming, and Andersen, 1984; Andersen, Aday, and Lyttle, et al., 1987). Some indicators, such as age, sex, race, and occupation can serve to identify groups with potentially impaired access, but they cannot be altered by health policy.

Finally, although most researchers have concentrated on access to ambulatory services, a broader perspective is essential to monitor the impact of physician payment reform on access. Developing methods for measuring access to specialty services and procedures is particularly important because the Medicare Fee Schedule will reduce reimbursement for those services relative to primary care services.

The remainder of this chapter presents a brief review of prior research on the utilization of physician services and then outlines a workplan for monitoring beneficiary access under the Medicare Fee Schedule.

REVIEW OF PREVIOUS STUDIES

Many researchers have used survey data to study the factors affecting ambulatory services utilization by individuals (Hershey, Luft, and Gianaris, 1975; Kronenfeld, 1978; Tanner, Kukerham, and Spaeth, 1983; Thomas and Penchansky, 1984; Aday

Table 10-1. Variables for Monitoring Access and Their Sources

System Characteristics

- Rural or urban (HISKEW)
- Physician-to-population ratio by specialty (ARF)
- Presence of HMOs (ARF)

Beneficiary Characteristics

Sociodemographic

- Age (HISKEW, Survey)
- Sex (HISKEW, Survey)
- Race (HISKEW, Survey)
- Education (Survey)
- Employment status (Survey)
- Marital status (Survey)
- Living arrangements (Survey)

Financial

- Income (Survey)
- Medicaid (HISKEW, Survey)
- Other cash or in-kind benefits (Survey)
- Private supplementary insurance (Survey)
- Cost of supplementary insurance (Survey)

Health Need

- Self-reported health status (Survey)
- Worry about health (Survey)
- Disability days (Survey)
- Bed days (Survey)
- Selected symptoms and/or diagnoses (Survey)

Utilization

- Fraction of beneficiaries with a visit (Survey, BMAD)
- Average number of visits (Survey, BMAD)
- Site of visits (Survey, (BMAD)
- Fraction of ambulatory visits to ER or hospital OPD (Survey, BMAD)
- Utilization of selected specialty and surgical services (Survey, BMAD)
- Time since last visit (Survey, BMAD)

Satisfaction

- Satisfaction with cost (Survey)
- Satisfaction with convenience (Survey)
- Satisfaction with quality (Survey)
- Satisfaction with access to specialists (Survey)
- Satisfaction overall (Survey)

Barriers to Access

Financial

- Difficulty finding participating physician (Survey)
- Out-of-pocket expenditure (Survey)
- Impact of medical expenditures on financial status (Survey)
- Forgone care because of cost (Survey)
- Fraction of services on assignment (BMAD)
- Fraction of expenditures on assignment (BMAD)

Organizational

- Travel time to provider (Survey)
- Means of transportation (Survey)
- Availability of off-hours care (Survey)
- Regular source? (Survey)
- If yes, specific physician? (Survey)
- Description of source (Survey)
- If no, reason why not (Survey)
- Homebound status (Survey)

Convenience

- Appointment time (Survey)
- Office waiting time (Survey)
- Forgone care because could not get appointment (Survey)
- Sought emergency care because could not get appointment (Survey)
- Sought emergency care because physician would not see on short notice (Survey)

Source: Adapted from Andersen, McCutcheon, Aday, et al., 1983.

Note: HISKEW is the Health Insurance Skeleton Write-Off File; ARF is the Area Resource File; BMAD is the Part B Medicare Annual Data System.

and Andersen, 1975; Andersen, Aday, and Lyttle, et al., 1987). Most have found that the most important factor explaining utilization is the need for medical care (e.g., perceived health status or degree of health concern) (Rundall, 1981; Hulka and Wheat, 1985). The availability of medical resources and sociodemographic characteristics have generally assumed secondary importance in explaining variations in utilization.[1]

Studies on the effect of patients' out-of-pocket costs on utilization show that persons with insurance coverage are more likely to use ambulatory services, even after taking health status into account (Hulka and Wheat, 1985). In the same vein, increased cost-sharing is associated with lower rates of utilization (Berki and Aschraft, 1979; Brook, Ware, et al., 1984).

Persons who have a regular source of care are also more likely to use ambulatory services (Thomas and Penchansky, 1984; Hulka and Wheat, 1985; Andersen, Aday, and Lyttle, et al., 1987). Having a regular doctor affects the amount and kind of care used, as well as satisfaction with the care received.[2]

Elderly Persons

Several studies have addressed ambulatory utilization by elderly persons (Long and Settle, 1984; Arling, 1985). Extensive analyses of subgroups of the elderly have been performed using the 1982 National Access Survey (Andersen, Aday, and Lyttle, et al., 1987). The results are similar to those for persons under sixty-five. Measures of health need, having a regular doctor, and private supplementary insurance coverage were all related to utilization.

More recently, the 1986 Robert Wood Johnson Foundation's Study of Access found that the number of annual physician visits per elderly person fell between 1982 and 1986,[3] and that the drop was greater for poor persons (Freeman, Blendon, and Aiken, at al., 1987). As a result, the poor and non-poor elderly saw physicians at equal rates in 1986 (4.8 and 4.9 visits annually, respectively) despite more of the poor reporting ill health. This may be an indication that the poor may not seek the care they need because they cannot afford it. Only 29 percent of poor elderly persons are eligible for Medicaid. Furthermore, Medigap coverage is less common among poor, black, older and sicker beneficiaries than among beneficiaries who are well off, white, younger and healthier (PPRC Survey of Medicare Beneficiaries, 1988). This finding has raised concerns about deteriorating access for the elderly poor.

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[1] Some observers suggest that the expansion of health services and insurance coverage in the society has lessened the relevance of factors such as income. Others emphasize that sociodemographic characteristics may explain differences in use among population groups better than among individuals.

[2] The site of care is also critical. Some groups disproportionately use hospital outpatient and emergency departments as substitutes for having a regular doctor. These are not considered appropriate sources of primary care because the care is more fragmented, more costly, and less satisfying than care given in a physician's office. Extensive use of the hospital for ambulatory care may also be a marker for impaired access.

[3] The 1982 National Access Survey on which this comparison is based found higher visit rates than other studies done that year, so the difference in visits found here may overstate any actual decline in physician utilization. Indeed, Janet Mitchell's data from four states suggest that the total number of yearly visits by beneficiaries did not change between 1983 and 1986 (Mitchell, et al., 1989).

Geographic variation in elderly persons' access to ambulatory services has not been studied extensively, but one study suggests that it may be substantial.[4] Using 1979 data, Aday and Andersen (1981) found that among twelve communities, the proportion of elderly persons with a regular source of care varied by 14 percent and the proportion visiting a physician within the previous year varied by 21 percent.

A STRATEGY FOR MONITORING ACCESS TO PHYSICIAN SERVICES

Two types of physician services should be distinguished for monitoring: evaluation and management services (visits and consultations) and surgical procedures. Changes in access may have different consequences for the two types since fees for most evaluation and management services will increase while fees for most surgical procedures will decrease.

Although fees for most evaluation and management services will increase under the Medicare Fee Schedule, it is important to monitor access to these services for several reasons. First, concerns about equity suggest that differences in access across areas or beneficiary groups should be monitored. Second, access could be impaired because beneficiary cost-sharing will increase. Third, the implementation of the MFS will not be static. As the fee schedule is updated and as other payers respond to Medicare's initiative, access problems may arise that are not foreseeable now. Lastly, it is important to document any salutary effects of the Medicare Fee Schedule on access as it is to discover instances of deteriorating access.

By contrast, the MFS will reduce payments for many surgical and invasive procedures. The effects of these changes on beneficiary access to surgical services and new technologies are not easily predicted. On the one hand, physicians whose fees are cut may be less willing to provide services. On the other hand, increases in the fees for visits to procedure-oriented physicians may be sufficient to compensate them for reductions in fees for procedures. In any case, close monitoring is needed.

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[4] Geographic variation in access is important because the Medicare Fee Schedule will affect fees in different geographic areas differently. Thus it could either reduce or exacerbate any disparities that currently exist.

Goals

The process to monitor access to physician services has the following objectives:

- to describe the geographic variations, the differences among population groups, and the temporal trends in access indicators prior to the implementation of payment reform;
- to monitor the changes in access indicators that follow the implementation of the MFS, emphasizing population groups and geographic areas as units of analysis; and
- to use this information in the annual update of the MFS to try to correct emerging access problems.

Variables of Interest

Table 10-1 summarizes the variables that can be used to monitor access under the Medicare Fee Schedule and the data source for each variable.

Inadequate access could result for services with reduced fees if voluntary acceptance of assignment decreases and the frequency and size of balance bills grow. These developments would increase the out-of-pocket cost to beneficiaries. Alternatively, because balance billing will be limited under the MFS, inadequate access also could result if physicians are less willing to care for Medicare patients. Thus important variables to monitor are waiting time for an appointment, utilization of emergency care because an office appointment could not be obtained, waiting time in the office, and whether a person has (or has recently lost) a regular source of care. Assignment rates and participation rates in the Participating Physician Program (PAR) should also be monitored.

While the Commission believes that some access problems could be addressed through changes in the fee schedule, it does not feel that physicians' pricing behavior, per se, should be interpreted as reflecting the adequacy of fees. Physicians' pricing behavior is likely to be strongly influenced by expectations created under the CPR system. Thus there may be a tendency to increase balance billing when fees for certain services are reduced, particularly in the initial period following implementation of the MFS. The Commission plans to focus on the implications of these responses for beneficiary access rather than on the responses themselves.

Finally, the Commission supports efforts to measure access in new and innovative ways, such as tracking clinical indicators. One promising approach involves monitoring the reasons for admission to hospitals. Diagnoses such as "uncontrolled hypertension" could signal inadequate access to primary care services. Quasi-experimental studies could obtain baseline and follow-up data on the treatment, health outcomes, and satisfaction with care of beneficiaries with chronic hypertension and diabetes. As these approaches are validated by further research, they could be very useful for monitoring the impact of the Medicare Fee Schedule on beneficiaries' access to care.

Data Sources

Two types of data sources should be used to monitor access: Medicare claims and surveys. Claims data provide objective information on utilization, assignment, and balance billing. Surveys can provide information on beneficiaries' socioeconomic status, their satisfaction with health care, and their self-perceived health status. Both types of data are important and should be considered complementary.

Claims Data. The beneficiary file in the Part B Medicare Annual Data system (BMAD-IV) contains line-by-line detail from claims for services received by a 5 percent sample of aged and disabled beneficiaries and all ESRD beneficiaries. It can provide information regarding the physician-services utilization experience of approximately 1.5 million beneficiaries. Available data include the specialty of the physician delivering a service, the site of the service, the submitted and allowed charges, and whether the physician accepted assignment. Beginning in 1990, BMAD files will contain ICD-9 codes, a source of diagnostic information. Because it is compiled yearly, a time series can be developed that includes the years prior to implementation of the Medicare Fee Schedule and continues after payment reform.

Although BMAD-IV contains no sociodemographic or residential information on beneficiaries, it can be merged with the Health Insurance Skeleton Write-off file (HISKEW). HISKEW contains information on beneficiaries' age, sex, race, state, county, ZIP-code, and entitlement classification.

The large number of beneficiaries represented on these files make them ideal data sources for monitoring differences in utilization of selected services across geographic areas and among population groups (e.g., blacks, the "old" elderly, etc.).[5] They can also be used to monitor trends in beneficiaries' financial burden. Assignment rates can be tracked for the chosen services by region and population group. In addition, estimates of balance bills can be obtained by calculating the difference between submitted and allowed charges on unassigned claims. Unfortunately, neither BMAD nor HISKEW contain data on income or supplementary insurance coverage, so a complete picture of utilization and out-of-pocket liability by sociodemographic groups cannot be obtained from claims data.

Surveys. Survey data should be used to complement claims data. National surveys on utilization, health insurance coverage, and access have been carried out over the past decade by the National Center for Health Statistics (NCHS), the National

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[5] Possible criteria for selecting services are high frequency, high expenditures, questionable efficacy, large changes in fees under the Medicare Fee Schedule, and/or previous evidence of inadequate access or inequities in access.

Center for Health Services Research (NCHSR), and private foundations. These surveys have also measured outpatient visit rates, but it seems reasonable to assume that these measurements are less accurate than those derived from claims data.[6] More important, they have elicited information on health status, insurance coverage, out-of-pocket expenditures, satisfaction with care, and perceived barriers to care, whether financial or other. The findings of these surveys might be used to establish national baseline trends in these variables for the elderly prior to payment reform.

In brief, these surveys include:

o The National Ambulatory Medical Care Survey (NAMCS)

The NAMCS, conducted by NCHS, was first fielded in 1973 and continued through 1981 when funding was withdrawn. It was also conducted in 1985 and will be repeated in 1989. The 1989 sample will include 2,500 office-based physicians and 35,000 patient visits.[7] Variables of interest are collected on "patient encounter forms" that document services provided and demographic information about the patient and the physician. The 1985 NAMCS had a 70.2 percent response rate.

o The Health Interview Survey (HIS)

The HIS, conducted by the NCHS, is a nationwide, continuous household survey. The samples scheduled for each week represent a target population and the results are additive over the year. The information obtained includes demographic characteristics, illness and injury data, and the utilization of health services. The HIS contains special supplements each year; for example the 1984 supplement focused on the elderly.[8] There may be opportunities for the Commission to influence the selection of items included in the future. Also of interest is a project to map data collected in the HIS to three health status measures in an effort to develop a composite measure of health

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[6] Both measurements are subject to biases. In the case of surveys, the most obvious concern is inaccurate recall. For claims data, bias could be introduced because beneficiaries might fail to submit claims for unassigned services and because services received before the deductible is met do not require claims to be filed. The bias in claims data should decrease over time as assignment rates rise and the average price of visits increases (so that fewer visits fail to exceed the deductible). Moreover, the Commission's recommendation that physicians be required to file all claims, whether assigned or unassigned, would assure a more complete data base.

[7] The number of patients may be lower than the number of visits, because one patient may have multiple encounters. However, the bias should be small because the sampling period for each physician is only one week.

[8] The Supplement on Aging (SOA) arose from the concerns of several public health agencies regarding the nation's aging population, their health and functional status and alternatives to institutionalization as a means of providing care.

(Erickson, et al., 1988). This research will evaluate the usefulness of these measures in assessing the nation's health.

- Comprehensive Medical Care Expenditure Surveys

Three population-based surveys performed during the past decade have focused on national medical care expenditures. The earliest of these was the National Medical Care Expenditure Survey (NMCES), conducted in 1978. This was followed by the National Medical Care Utilization and Expenditure Survey (NMCUES) in 1980 and the National Medical Expenditure Survey (NMES) in 1987. Data in these surveys include details of health care utilization, source of payment, health insurance coverage, and balance billing.

- Current Beneficiary Survey (CBS)

The CBS was formerly conducted by the Census Bureau for the Social Security Administration until 1977 when it was discontinued. The 1977 survey collected extensive demographic, personal history and medical care information including data on balance billing. A new CBS has recently been proposed.[9] The design is a longitudinal cohort sampled from the Medicare eligibility file. Features under consideration include monthly or quarterly interviews with a mix of telephone and face-to-face contacts, one-time additions of modules to respond to specific questions of policy and administrative significance, and sample stratification to adequately represent groups of particular interest. Data from the CBS could be linked to other surveys and data bases such as the National Medical Expenditure Survey and BMAD.

Another data source, the Medicare Automated Data Retrieval System (MADRS), includes information on Parts A and B of Medicare and can provide person-based data for specified beneficiaries or cohorts of beneficiaries. For example, data on beneficiaries residing in a particular state or county can be retrieved. The system can facilitate the construction of time series data on hospital and outpatient utilization. Demographic variables included in the data base are age, sex, race, Medicare status code, state, county and zip code.

In addition to existing surveys, the Commission, HCFA, and/or others could conduct their own periodic national surveys of beneficiaries. As with existing national surveys conducted by other organizations, these surveys would serve to document broad national trends. In addition, small-scale surveys targeted at selected geographic areas or population groups could be conducted. This type of survey could be used to explore in detail cases where problems are anticipated or suspected.

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[9] A decision memo was sent to the administrator of HCFA in November, 1988. The Office of the Actuary in HCFA is awaiting approval.

Work Plan

The discussion that follows is divided into pre-reform and post-reform periods, although many elements of the work plan are similar during both phases. The ambitious work plan reflects the priority the Commission believes should be placed on monitoring the effects of the fundamental changes in Medicare policies for paying physicians that are contemplated in the Medicare Fee Schedule. The Commission, HCFA and other agencies will share responsibility for monitoring access.

Pre-reform. As previously stated, one goal of the monitoring process is to describe the geographic variations, the differences among population groups, and the temporal trends in access indicators before the Medicare Fee Schedule is implemented. The approach to achieving this goal has several components.

First, the findings of recent national surveys described above and the content of ongoing surveys and other available data files should be reviewed to determine whether they can be used to establish baseline trends in beneficiary access.

Second, starting with calendar year 1986, yearly BMAD-IV files (merged with the corresponding HISKEW file) should be used to develop time series describing the existing cross-sectional patterns and temporal trends in the utilization of the two types of physician services. Specifically, analyses should document geographic variation in the utilization of services, determine whether there are discernible patterns in the variation, and examine whether the patterns are changing over time. Using national norms as a standard, two types of areas should be identified and considered for further study: areas with either consistently high or consistently low utilization (for example, utilization outliers) and areas where the rates of utilization are changing rapidly. Where the number of beneficiaries permits, further analyses might be done stratifying beneficiaries in an area by age, race, and/or sex.

The BMAD time series should also include data on assignment rates and on balance billing for different services. Temporal trends in these variables for particular services would indicate changes, both favorable and unfavorable, in beneficiaries' out-of-pocket liability. Adjustments in fees may be necessary if access problems or intolerable financial burdens result.

Third, a national beneficiary survey (or surveys) might be carried out if other data sets and surveys are insufficient. Such surveys would supplement previous national surveys and the 1988 PPRC Beneficiary Survey[10] and could provide baseline information on variables of special interest.

Fourth, the Commission recommends that targeted surveys be considered, even before a fee schedule is fully implemented, in areas identified as utilization outliers or where utilization rates are changing rapidly. These surveys would provide useful baseline data on process indicators and satisfaction for areas that could be markedly affected by payment reform.

Post-reform. An important goal in the post-implementation period is to monitor changes in access indicators and use this information in the update process. The post-reform period may be considered in two phases. The first phase will be the period immediately following transition to the MFS. Changes in access indicators noted during this time period may not reflect real changes in access, but rather temporary responses resulting from a system in flux. These changes will be examined more closely once both beneficiaries' and providers' behavioral responses are understood and equilibrium is achieved.

Three components of the MFS could be adjusted in response to access problems. First, selected relative values could be adjusted if there is sufficient evidence that access to particular services has suffered because the original relative values did not fully reflect physician work or practice costs. Second, the geographic multiplier could be adjusted to respond to evidence that access in certain areas was restricted because of problems in setting the geographic multiplier. Finally, updates to the conversion factor could take into consideration what is learned about access to care for the entire Medicare population.

To achieve these objectives, the time series of utilization, assignment, and balance billing data based on BMAD-IV should be continued. Comparisons of Medicare payment levels to those of other payers should be made. In addition, the Commission, HCFA, and others should continue to conduct periodic national and targeted surveys. Variables other than utilization that could be affected by payment reform should be taken into account in choosing areas for in-depth scrutiny after the fee schedule is implemented. Thus, besides utilization outliers and areas where utilization rates are changing rapidly, areas where beneficiaries' financial burden is increasing also should be considered.

Finally, feedback regarding the impact of a MFS on access to care will come from interest groups, including beneficiary groups. As part of the annual update process, these groups will be invited to provide the Commission with evidence of changes in beneficiary access that may have developed.

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[10] The 1988 PPRC Beneficiary Survey provides information regarding access to care on an assigned basis, the amount of balanced billing beneficiaries face, and general information about beneficiaries' understanding of assignment. See Chapter 7.

To assist with the pre- and post-reform tasks, the Commission recommends approval of the proposed Current Beneficiary Survey by the Administrator of HCFA and adequate funding to carry it out. This survey could provide timely information on beneficiary use of services, the out-of-pocket costs of these services, the coverage of alternative insurance, the impact of the new catastrophic coverage provisions, levels of disability, and other health status indicators. The implementation of a focused, continuous, flexible and timely survey of beneficiaries would greatly assist the Commission, HCFA and others in their work to monitor access.

Additionally, the Commission recommends that steps be taken to insure that this survey will provide appropriate data to monitor the impact of changes in physician payment on access. Input from the Commission should be solicited as the survey is developed.

CONCLUSION

The Commission expects that the MFS will generally increase access to quality health care by Medicare beneficiaries. The financial burden on beneficiaries, their care-seeking behavior and the behavior of physicians with regard to their Medicare patients are major concerns of the Commission. The work plan and recommendations submitted in this chapter are the foundation for future efforts to insure access to care for Medicare beneficiaries under the Medicare Fee Schedule.

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CHAPTER 11

EXPENDITURE TARGETS

Between 1979 and 1989, Medicare spending on physician services per enrollee more than tripled, rising much more rapidly than inflation and consuming a substantial amount of public and private resources. With Medicare now accounting for a much larger proportion of the federal budget and the budgets of beneficiaries, the prospect of continued rapid growth in spending is ominous. The sacrifices in other public priorities--for example, education, public health, housing--will become larger and more intolerable. So will the sacrifices by the many elderly with low or modest incomes. The Medicare program appears to be nearing the point at which continued rapid growth in Medicare spending for physician services cannot continue.

In order to meet this pressing need to slow the rate of growth of expenditures, the Commission has developed a proposal under which annual increases in the conversion factor for the Medicare Fee Schedule are based on how increases in spending per enrollee compare to a target rate of increase.

RECOMMENDATION

The conversion factor should be updated annually through an expenditure target formula, so that the rate of increase of Medicare expenditures per enrollee determines in part the size of the conversion factor update.

The expenditure target should initially apply to all physicians' services nationally. The policy is expected to evolve, leading to incorporation of a broader range of services and to separate targets for regions and/or categories of physicians' services.

Expenditure targets would provide a mechanism through which Medicare could control program expenditures. By linking the conversion factor update to an expenditure target that is below the trend of increases in expenditures, outlays will grow less rapidly than they have in recent years.

But unlike other cost control mechanisms, expenditure targets would provide an opportunity for physicians to help the program achieve the goal of cost containment through changes in practice style. If physicians were able to reduce the magnitude of increases in utilization of services, Medicare could meet its budget goals while physicians avoided diminished fee updates.

Over the past few years, decisions to slow the increase in outlays for physicians' services under Medicare have led to the direct constraint of prices. This policy has evolved from the across-the-board freeze beginning in 1984 to the more selective cuts in 1987. But price constraints alone do not contribute to long-run solutions to the problem of rising costs.

Expenditure targets would provide a collective financial incentive to the medical profession to slow expenditure growth by reducing services of little or no benefit to beneficiaries (Brook, Kamberg, Mayer-Oakes et al., forthcoming). While not providing direct incentives to individual practitioners, such a policy would encourage the leadership of medicine to become more active in the support of activities to better inform physicians of the medical benefits and risks of procedures, and to play a more active and constructive role in peer review activities.

The federal government's responsibility in such a policy goes beyond setting the targets and monitoring spending, however. As described in Chapter 12, the federal government must provide substantial support for activities that would increase knowledge on effectiveness and appropriateness. As described in Chapter 13, the federal government must also strengthen utilization and quality review activities by carriers and peer review organizations, encouraging these organizations to look to the medical profession for technical support on review criteria. Federal action may also be needed to reduce the threat of antitrust actions against medical organizations that develop practice guidelines or assist PROs or licensing boards in identifying physicians whose care is inefficient, ineffective or substandard. Medical tort reform would also increase the potential for expenditure targets to be effective.

FINANCIAL MECHANISMS OF EXPENDITURE TARGETS

An expenditure target policy must specify the scope of services to be included in the target, the geographic area to which the target would apply, the formulation of the target rate of increase, and the implications for the conversion factor update when actual expenditures are higher or lower than the target.

Scope of Services

The scope of services covered by the expenditure target policy could range from physician services under Part B to all services that physicians order for patients.[1] This could include additional Part B services, such as hospital outpatient services, ambulatory surgery center services, independent laboratory services, and others. The scope could extend further to inpatient services under Part A. While Medicare payments per admission are already determined through PPS, the rate of admissions to hospitals could be included in the expenditure target.

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[1] Throughout this chapter, the term "physician" refers to doctors of medicine or osteopathy, in contrast with the definition in Section 1861(r) of the Social Security Act that also includes chiropractors, dentists, podiatrists, and optometrists. This definition is used because the discussion and recommendations in this chapter refer only to services provided by doctors of medicine or osteopathy.

If the scope extended beyond physicians' services, this would not imply that the prices for those services would be adjusted in response to expenditure targets. Rather, the conversion factor update for physicians' services would simply be based on a broader indicator of expenditure growth.

Arguments for a broader scope include giving physicians more options through which to slow expenditure growth and recognizing opportunities to substitute some services for physician services. For example, physicians might find it easier to contain costs through reducing the rate of hospital admissions than through reducing office services. A broader scope would encourage the medical community to work toward more appropriate and efficient use of all health care services, to use the most efficient modalities of care, and to work closely with hospitals and other institutions to make improvements in the organization of the delivery system.

On the other hand, a broader scope would increase complexity. The Commission recommends beginning with a relatively narrow scope--physician services plus outpatient laboratory tests--and considering broader targets later.[2]

Within physician services, separate targets could be developed for categories of service. For example, the American College of Surgeons has proposed an expenditure target for surgical services (Austin, 1989). Separate targets could increase the participation of national specialty societies and give physicians more of a sense that they can respond to the incentives. But insufficient attention has been paid to how to develop appropriate targets for categories of services and separate targets could interfere with desirable changes in practice patterns (for example, substitution between medical and surgical approaches to a patient's problem).

Expenditure targets would apply to the fee-for-service sector only; HMOs and CMPs with Medicare risk contracts would continue to receive per capita payments based on the adjusted average per capita cost (AAPCC). Since the AAPCC is based on fee-for-service payments, however, HMOs and CMPs would be affected indirectly.

Geographic Area

Expenditure targets could apply at either a national or regional level. A national target would be the simplest in that it would require the fewest decisions regarding design.

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[2] Outpatient laboratory services, whether provided in the physician's office or in an outside laboratory, would be included in the targets along with physician services. The two settings are very close substitutes.

But a separate target could be developed for each state or substate area. The advantage of a smaller geographic area is that state and local physician organizations could play a larger role in attempting to affect practice through education and peer review.[3] Medicare has organized its infrastructure of carriers, intermediaries and PROs on a geographic basis that approximates state boundaries. With regional targets, physicians might feel that they could work through their local organizations to meet state or metropolitan targets, while national targets would encompass too many aspects of care beyond their control.

Regional targets raise some difficult policy issues, however. Areas have different rates of use of services per Medicare enrollee, and it might be appropriate for those areas with lower utilization to have higher target rates of increase.[4] In addition, decisions would be needed concerning accounting for boundary crossing--beneficiaries obtaining services in a different geographic area than where they live.

As in the case of scope of services, the Commission suggests that expenditure targets begin in a relatively simple manner--at the national level--with the expectation that the policy would progress to greater levels of refinement. It has done extensive work in developing options that are more complex and will continue this work during the coming year.

Setting the Target

The expenditure target would specify a desired annual rate of increase in expenditures for physician services. To address what the desired rate should be, it is useful to separate expenditure growth into three components--general inflation, increases in the number and average age of enrollees, and increases in services per enrollee.[5] Neither physicians, beneficiaries, nor the Medicare program have control over the first two factors. Thus the choice of a target rate of expenditures amounts to a decision about desired growth in services per enrollee. This would reflect tradeoffs between the anticipated benefits of increased services per enrollee and the willingness and ability of taxpayers and beneficiaries to pay for them.

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[3] These organizations could also work more actively with state medical licensure bodies.

[4] One method of dealing with area variation in rates of use would be to establish a corridor--for example 15 percent above or below the national average. All geographic areas with utilization rates within the corridor would receive the same target rate of increase. But areas outside the corridor would be assigned targets 2 percentage points per year above or below this rate until they reached the edge of the corridor.

[5] The target might also be adjusted for other changes in Medicare policy that would affect expenditures for physician services. For example, Medicare payment of coinsurance for beneficiaries who exceed the new catastrophic thresholds will increase Medicare expenditures. In addition the PPRC recommendation to require physicians to submit claims for all services (Chapter 14) would initially increase spending.

In the initial years of an expenditure target policy, the potential for physicians to slow the growth in service use without sacrificing quality might be limited. Development of additional practice guidelines and strengthening the infrastructure of education and medical review will not be accomplished overnight. This argues for setting the initial expenditure targets to gradually rather than abruptly slow the rate of increase in expenditures.

Updating the Conversion Factor

Under an expenditure target policy, fee schedule conversion factor updates would be based on comparisons of actual expenditures with targeted expenditures. If actual expenditures during a year equal targeted expenditures, then the conversion factor update for the following year would equal the percentage increase in a reformulated Medicare Economic Index (MEI).[6] If actual and targeted expenditures are different, the update would be increased or decreased accordingly.

As an example, assume that the MEI will increase by 4 percent, enrollment and aging will increase expenditures by 2 percent, and volume of services is projected to increase by 7 percent per (age-adjusted) enrollee. This would lead to a 13 percent increase in expenditures from the base year. Now assume that a target of 11 percent per year for two years--2 percentage points less than the projection--is chosen. Thus growth of billed services per enrollee would have to slow to 5 percent for physicians to receive an update equal to the MEI for the following year.

If actual expenditures rise 13 percent, then the conversion factor update for the following year would be 2 percent (the 4 percent increase in the MEI less the 2 percent by which the target was exceeded). If actual expenditures rise only 9 percent, then the conversion factor update would be 6 percent (the MEI increase of 4 percent plus the 2 percent by which expenditures fell short of the target). In either case, the second year's target would be 111 percent of the first year's target level of expenditures (or 123 percent of expenditures in the base year).

Alternatively, the target could be set further below the projected rate of increase in expenditures--for example at 8 percent. This would hold growth in Medicare physician outlays much closer to increases in the gross national product. The probability that smaller conversion factor updates would play a larger role in bridging the gap between the projected and targeted rates of growth of expenditures would be increased, however.

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[6] Physician fee increases could be linked to some other index than the Medicare Economic Index, or the index currently used could be refined for use in expenditure targets. In either case, the index should continue to reflect increases in both physicians' practice costs and the opportunity costs of physician inputs. For this discussion, we will assume that a refined and improved MEI is the index used.

PHYSICIAN RESPONSE TO EXPENDITURE TARGETS

Expenditure targets would provide a collective financial incentive for the medical community to slow expenditure growth. They are intended to stimulate a collective response by the medical community. Through its organizations and leadership, the medical profession can influence the clinical decisions made by individual physicians through educational programs, development and dissemination of practice guidelines, peer pressure, and by working with Medicare to strengthen and improve utilization and quality review.

Individual physicians would have essentially the same financial incentives as they do now, including the incentive always present under fee-for-service to provide additional services. The financial incentive of expenditure targets is by design diluted over the thousands of physicians to whom a target would apply. Increases in expenditures by individual physicians would have no appreciable impact on their own fees, so no physician would have a direct financial incentive to reduce the services provided to his or her patients.[7] This would avoid any potential adverse effects on the accessibility and quality of care that might result from strong financial incentives for individual physicians to reduce expenditures. Influences on individual physicians to provide fewer services would come through external, nonfinancial mechanisms.

Practice Guidelines and Improved Medical Review

Practice guidelines, especially when accompanied by data on current patterns of practice, provide physicians with the information they need to identify services of little or no benefit. Guidelines based on clinical knowledge of effectiveness are recommendations for appropriate use of medical and surgical procedures and for care of particular clinical conditions. The availability of guidelines will also enhance the effectiveness of peer review processes and continuing medical education programs.

The dissemination of easily-used information regarding the appropriate use of medical procedures and services would enable physicians to make immediate improvements in their medical practices. As discussed in Chapter 12, the Commission recommends substantial additional federal support for development and dissemination of practice guidelines and for increased research and evaluation of the effectiveness of specific medical practices and procedures.

A number of specialty societies are actively involved in developing practice guidelines, including the American College of Physicians and the American College of Cardiology (in collaboration with the American Heart Association). The

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[7] By contrast, some HMOs are structured so that a physician's income depends directly on the costs of the care he provides, giving each physician a strong financial incentive to reduce service to his or her patients.

American Medical Association (AMA) recently announced a joint project with the RAND Corporation to develop and disseminate practice guidelines and parameters. The Council of Medical Specialty Societies (CMSS) sponsored a conference in 1987 on the Standards of Quality in Patient Care and is currently developing a protocol to be used by specialty societies for setting clinical standards.

The medical community could also respond to expenditure targets by providing greater support for peer review activities. Peer review identifies medical practice problems that could be corrected through continuing medical education programs or, when necessary, through mechanisms such as claims denial or professional credentialing. The effectiveness of peer review activities could be improved by the development and use of better review criteria based on practice guidelines.

The most active organizations in the area of practice monitoring are PROs, carriers and intermediaries.[8] PROs in particular provide an established channel for the medical community to carry out the peer review activities necessary to administer an expenditure target. Most PROs have been operational for four to five years and have accumulated considerable experience in conducting peer review activities. The PRO community is actively exploring the potential for practice guidelines to provide more accurate clinical criteria for utilization and quality review (American Medical Peer Review Association, 1989).

While the initiatives to expand practice guidelines and improve utilization and quality review are logically separable from expenditure targets, they are complementary. Guidelines and improved review are powerful tools the medical community can use to reduce expenditure growth. The financial incentives provided by an expenditure target system might lead the medical community to be more vigorous in developing and disseminating practice guidelines and in making review more effective.

Educational Programs

There are now many educational programs for physicians. The AMA, national specialty societies, state medical societies, and academic medical centers conduct continuing medical education courses to provide physicians with information about appropriate medical practice. These courses supplement professional journals and consultations with colleagues. Many physicians are required to satisfy continuing medical education (CME) requirements as a condition of state licensure, recertification by a specialty board, or continued membership in a specialty society.

The physician community could increase the effectiveness of existing educational programs by linking them to practice guidelines and providing feedback to physicians about their own practice patterns. PROs and carriers can provide information on appropriate clinical practice targeted to areas of professional uncertainty or individual physicians' observed deficiencies. Educational programs have been of limited use in addressing deficiencies in physicians' medical practices, but they could be improved through stronger working relationships between PROs and organizations actively involved in continuing medical education.[9]

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[8] For a discussion of the types of changes in PROs and carriers that would improve the effectiveness of peer review activities, see Chapter 13.

Educational programs could be made more effective with increased availability of data on actual clinical practice patterns. For example, educational programs could include feedback to physicians of their practice patterns compared to those of their peers or to practice guidelines.[10] Such data could also be used to identify medical practices that should be investigated because they are inconsistent with medical knowledge (for example, they do not conform to accepted practice guidelines) or for which utilization is highly variable among physicians or geographic areas.

ANTITRUST AND MALPRACTICE

Legislative or administrative changes may be necessary to insure that fear of antitrust or malpractice litigation do not impede efforts of the medical community to respond constructively to expenditure targets.

Physicians and their organizations believe that they may be subject to both antitrust action and other legal sanctions if they try to influence their colleagues' use of services. They are concerned about possible antitrust action by the Justice Department and the Federal Trade Commission against physician organizations that develop and promote practice guidelines. As discussed in Chapter 12, initial inquiry by the Commission suggests that physicians and their organizations may not be at risk of antitrust liability for educational and other non-coercive activities like developing and disseminating guidelines, or for working through Medicare's established peer review mechanisms such as hospital staffs and PROs.

Most coercive activity by one group of physicians against another is proscribed by law. Coercive actions should be confined to established channels like medical staffs, PROs, and licensing bodies that follow due process and provide legal protection to physicians following procedures established by these organizations. Medicare legislation provides PROs and PRO reviewers engaged in medical review activities with substantial immunity from civil and criminal liability. Those providing information to PROs in regard to PROs' contract objectives to review the quality, reasonableness, and necessity of Medicare services are also protected. Persons working for or providing services to PROs cannot be held liable for performing activities authorized by the peer review law, if due care was exercised.

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[9] One notable example of such collaboration is a "mini-residency" program established by the Texas Medical Foundation, the PRO for the state of Texas. The program consists of one week of intensive training at a family medicine residency training site focused on eight medical care areas that give rise to most of the quality of care problems identified by the PRO (Texas Medical Foundation, 1988).

[10] HCFA currently supports a project to perfect methods of analyzing variations in practice patterns and to introduce to PROs a population-based methodology for conducting small area analysis. Now in the early stages, the project will analyze small area variations of medical and surgical conditions and provide training to PROs in the analysis and use of this data. The investigators are also designing educational feedback programs to help physicians understand the implications of variations in medical practice. The project is intended to build PROs' analytic abilities and engage PROs in educational programs in cooperation with the medical community.

However, many physician organizations have testified before the Commission that the current malpractice climate will impede efforts to encourage physicians to reduce services that have little benefit but substantial cost. Physicians now provide some services of little potential benefit to patients, particularly laboratory tests, imaging procedures, and other diagnostic tests, in an attempt to reduce their risk of malpractice suit--a practice called defensive medicine (Reynolds, Rizzo, and Gonzalez, 1987). The development of practice guidelines may provide both guidance in the proper use of these services and some protection from malpractice liability for physicians who follow them. If courts accept scientifically-based guidelines developed in good faith by the medical profession as standards of clinical practice, then malpractice risk may be reduced for physicians who follow them (Williams, 1988; Chapter 12). However, more fundamental reform of the malpractice system may be required.[11]

In the coming months, the Commission will assess the extent to which concern about antitrust and malpractice prevent physicians from responding constructively to expenditure targets and may suggest steps to remove legal impediments and reduce the fear of antitrust and malpractice liability.

BENEFICIARY PARTICIPATION

Beneficiaries share the burden of rising expenditures both through increased premiums and coinsurance and through exposure to the risks of services that will not benefit them. The effects of expenditure targets and the responsibility for slowing expenditure growth fall largely on physicians. But beneficiaries can participate in efforts to control expenditures if they have information that allows them to make better decisions about the use of medical services.

Information appears to be a more promising method than financial barriers to the use of care to involve beneficiaries in cost containment. Beneficiaries are already subject to coinsurance and deductibles that were intended to make them "prudent shoppers" for medical services. But most beneficiaries purchase supplementary insurance to avoid having to pay these costs at the time of service. Further, several studies have demonstrated that cost sharing at the time of service reduces the use of services that would substantially benefit the patient as well as services that would not (Shapiro, Ware and Sherbourne, et al., 1986; Lohr, Brook, Kamberg et al., 1986; Freeman, Blendon, Aiken, et al., 1987).

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[11] Medical malpractice liability and the need for extensive reform have been the subject of many conferences and scholarly works. Several recent examples are Department of Health and Human Services, 1988, and U.S. General Accounting Office, 1986.

Experience in developing programs to educate beneficiaries about the benefits, risks, and costs of medical care is limited. Nevertheless, the potential benefits of such education would be substantial. If physician organizations are to develop guidelines for the appropriate use of a procedure, it is important that beneficiaries be aware that in some instances the procedure's risks outweigh the medical benefits and in others the diagnostic or therapeutic value is so low that performing the procedure would be a waste of resources. The Health Care Financing Administration, medical organizations, and beneficiary organzations might direct some educational efforts, either collectively or through individual physicians, toward improving beneficiary understanding of the effectiveness and costs of health services.

Both beneficiaries and physicians want to preserve a health care system that fosters trust and mutual respect between doctor and patient. Efforts to reduce inappropriate services must be perceived by both physicians and patients to be sensitive to aspects of the relationship between them, including privacy, confidentiality, and individualized care. Otherwise, tension or confusion could damage patient care. As much as possible, Medicare reforms should preserve the involvement, understanding, and support of both physicians and those they serve. Assuring the delivery of medically necessary, appropriate, cost-effective care requires collaboration among reviewers, physicians, beneficiaries, and payers.

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CHAPTER 12

EFFECTIVENESS RESEARCH AND PRACTICE GUIDELINES

Practice guidelines provide recommendations for physicians about the appropriate use of medical services. They are based on knowledge of the effectiveness of medical practices and procedures from both effectiveness research and the expertise of practicing physicians.

RECOMMENDATIONS

The federal government should support effectiveness research and practice guidelines through funding, coordination, and evaluation.

For practice guidelines, federal funds should be used to support and build on initiatives by the medical profession and others in the private sector.

The relentless increase in costs of health care, and particularly physician services, has generated growing pressure to find ways to slow the growth of expenditures and to use health care resources more effectively and efficiently. At the same time, there is convincing evidence that some of the medical services and procedures that patients receive are of little or no benefit to them, and some pose substantial risk with no promise of benefit. The Commission is proposing that Medicare pursue a strategy to slow the growth of expenditures primarily by reducing such services.

Practice guidelines provide physicians with the information they need to identify and reduce services of little or no benefit and to insure that patients receive the services that they need. They are also a source of better criteria for utilization and quality review. Many more practice guidelines are needed to guide physicians' decisions and external review and additional effectiveness research is needed to improve the knowledge upon which guidelines are based.

Several hundred million dollars per year should be provided for clinical effectiveness research and technology assessment. These activities could be conducted and sponsored by existing federal agencies or through a newly created entity, perhaps in the Department of Health and Human Services.

Tens of millions of dollars per year should support the development, dissemination, and evaluation of practice guidelines and medical review criteria. These federal funds should be used to support and build on existing private sector activities by the medical profession and others. Federal oversight would insure the integrity of the process, including the quality of the methods used to develop the guidelines, and bring an element of coordination to the now-fragmented activities in the private sector. Funding and oversight could be provided through a new or existing agency within the Department of Health and Human Services, or an entity outside the government. The medical profession would be expected to continue their support both through funding and increased contributions of physician time and expertise.

As administrator of Medicare, the federal government should help its agents--PROs, carriers, and intermediaries--select and use sound review criteria consistent with these guidelines.

COSTS, QUALITY, AND APPROPRIATE CARE

While most of the services that beneficiaries receive improve their health and their ability to function, there is now convincing evidence that some of medical services provide benefits that are either negligible or are smaller than the medical risks involved. Reducing these services would improve the quality of care and could slow the growth of costs.

To do this, we must know which services are effective in improving health and have the means to identify and selectively reduce those of little or no benefit. Effectiveness research will increase knowledge of the benefits, risks, and costs of services and procedures. Practice guidelines and parameters synthesize that knowledge for use by physicians, patients, managers of care, reviewers, and regulators.[1]

Services of Little or No Benefit

Over many years, a substantial research literature has documented unnecessary laboratory tests, radiological procedures, hospital admissions and days of care, surgical procedures, and drugs.[2] More recent work has focused on several specific procedures, including carotid endarterectomy, upper gastrointestinal endoscopy, insertion of cardiac pacemakers, cardiac catheterization, and coronary artery bypass operations.[3] Applying criteria developed by practicing physicians, these studies have shown that a substantial fraction, perhaps 10-30 percent, of recipients were unlikely to benefit because the procedures were performed for inappropriate indications.[4] An additional fraction were performed for indications that experts could not agree were clearly appropriate or inappropriate.[5]

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[1] There are several terms used to describe practice guidelines and review criteria developed from them. "Boundary guidelines" and "practice parameters" specify the limits of acceptable practice, and are easily adapted for use as criteria for utilization and quality review. "Pathway guidelines" provide recommendations for the best or preferred practice. Pathway guidelines are neither designed nor well suited for review, because reviewers may assume that anything that is not "best" practice is therefore bad practice, but there are large "grey areas" where there is simply not enough information to determine the risks and benefits of the practice or procedure. Most would agree that review should not proscribe practice in these grey areas.

Some refer to formally developed practice guidelines as "clinical standards." We use the term "guidelines" to note that recommendations for proper clinical care embody varying degrees of uncertainty. Those in which there is great confidence could be offered as standards to which all should hold, but most should remain as guidelines until their validity as predictors of patient outcomes has been established.

Guidelines and review criteria consistent with them would be developed from the same base of knowledge of the effectiveness and appropriateness of medical practices and procedures. This might constitute two parallel but separate developmental processes, or might be accomplished by development of guidelines and then deriving review criteria from them.

Variation in the use of services among geographic areas has also been documented for hospitalization and for many procedures. For instance, Wennberg has shown per capita variations as great as six-fold among communities in New England in the use of procedures like hysterectomy and prostatectomy (Wennberg and Gittelsohn, 1982; Wennberg, 1984). Chassin and colleagues demonstrated similar variations in the use of many procedures for Medicare beneficiaries (Chassin, Brook, et al., 1986). These variations are cited as additional evidence that patients are receiving unnecessary services in some areas, or failing to receive needed services in others, or both.

The cost of these unnecessary services is substantial. Medicare spends more than $25 billion per year for physician services, and more than $2 billion for just eight surgical and diagnostic procedures (Committee on Ways and Means, 1989). If ten percent of these services are unnecessary, and half of those were eliminated, Medicare could save over one billion dollars from expenditures for physicians services, and one hundred million from decreased use of just these eight procedures.[6] Hundreds of millions more could be avoided for hospital costs associated with these services. These resources could be saved or spent for more beneficial services.[7]

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[2] For example, see Brook et al., 1989; Chassin et al., 1986a; Eisenberg, 1986; and Schroeder, 1987. The evidence on appropriateness of care for the elderly population is reviewed in Brook, Camberg et al., (1989).

[3] The references for these studies are Winslow, Solomon et al., 1988; Chassin, Kosecoff, et al., 1987b; Greenspan et al., 1988; Chassin, Kosecoff et al., 1987a; Winslow, Kosecoff et al., 1988; and Graboys et al., 1987.

[4] Several of these studies reflect practice in 1981, but appropriateness was judged on the basis of knowledge available at that time. The use of specific procedures may have improved because of new studies, but it is likely that the use of most services and procedures has changed little.

[5] Effectiveness is the probability of benefit (net of risk) to individuals in a defined population from a medical practice or procedure applied for a given medical problem. In other words, effectiveness is how well a procedure "works" for a particular type of patient and medical problem. Cost-effectiveness goes further to weigh the medical benefits (net of risk) against costs (Hammons, Brook, and Newhouse, 1986). A service that is effective but very expensive may not be cost-effective. Effectiveness research is designed to determine when--for what patients and medical conditions--a practice or procedure is effective; it can also investigate costs. Put another way, effectiveness is what we know about the benefits, risks, and costs of a practice or procedure, and effectiveness research is designed to get new or additional knowledge about this.

Appropriate care is the practices and procedures recommended for a patient given current knowledge of effectiveness. Practice guidelines are designed to specify appropriate care for specific patient conditions or problems. They are based on knowledge available at the time the guidelines are developed.

While development of new knowledge through research is relatively slow, current knowledge, both from accumulated medical research and from the expertise of practicing physicians, can be applied more rapidly through practice guidelines. Existing guidelines could be applied almost immediately, and new guidelines developed and put into use within two years.

Some unnecessary services and procedures also reduce the quality of care. Unnecessary laboratory tests may not harm the patient, but unnecessary invasive procedures involve substantial risks to the patient without accompanying benefit. For example, the study of carotid endarterectomy by Winslow, Solomon et al. (1988) found that about ten percent of patients undergoing the procedure suffered a stroke or died.

Patients also do not always receive the services they need. For instance, many Medicare beneficiaries do not receive preventive services that would benefit them, including those few preventive services that are covered by Medicare (Gluck et al., 1989).[8] In other cases, services they receive are not the best choice for their medical problem (Hammons, Brook et al., 1986).

Uncertainty and Knowledge of Effectiveness

Why do physicians provide patients with services that are later judged to be unnecessary or even inappropriate, that increase costs without benefit and may even do harm? There are a number of possible reasons. Clinical decisions to use services for patients are influenced by the organization of practice and the way the physician is paid, by the availability of hospital beds and physicians, and other factors. But one factor is important under all circumstances. Physicians and their patients do not have enough knowledge of the risks and benefits of medical services. They often simply do not have the right information to predict confidently whether a particular service or procedure can be expected to benefit the patient (Brook, 1988; Wennberg, 1984).

In some cases, even the experts do not know whether a procedure is likely to be effective for a patient, because the clinical effectiveness research has not been done to fully determine the risks and benefits of the procedure. In others, the information is available in the research literature, but many individual practicing physicians may not have that information, or may not use it.

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[6] These estimates do not account for the costs of other services that physicians might provide instead of those avoided. But the "substitute" services would be expected to provide greater benefits than those avoided.

[7] The National Leadership Commission on Health Care has estimated that Medicare could save $150 million per year in part B by a 5 percent reduction in nine selected procedures, and as much as several billion dollars per year in total Medicare expenditures (National Leadership Commission on Health Care, 1989).

[8] Most preventive services are not covered by Medicare, so financial barriers presumably reduce their use.

Much of the variation in the use of services has been attributed to uncertainty among physicians as to what services are appropriate for their patients (Wennberg et al., 1982, 1985, 1987; Eddy, 1984; Eisenberg, 1986). Wennberg has noted that there is less variation for services that physicians agree how to use appropriately, such as which patients with hip fracture should be hospitalized.

There is no evidence that physicians knowingly provide patients with services for which the risks outweigh the benefits. In fact, the Commission believes that these services are provided by physicians in good faith, but that physicians must often make patient care decisions under a great deal of uncertainty.

It appears that physicians do provide patients with some services, particularly diagnostic tests and procedures, that they expect to have little or no risk but also a very small benefit, in an effort to reduce their own risk of malpractice suit. Uncertainty may also play a substantial role here, since it is often not clear to the physician or to a court whether a service would benefit the patient (Eisenberg, 1986). The costs of "defensive medicine" may be substantial and contribute to the financial burden on beneficiaries and the Medicare program (Eisenberg, 1986; Reynolds, 1987).

Incomplete knowledge of the risks and benefits of medical services also limits the effectiveness of utilization and quality review. When review criteria are not based on sound evidence of effectiveness, external review may be arbitrary and may inhibit good quality care. Most utilization review is now based on statistical norms or averages. It sanctifies these statistical norms as though they were clinical "standards" without knowing what effects these practices have on patient outcomes.

Though there is already a substantial base of medical knowledge, there are many gaps in it (Eddy, 1984). We can increase knowledge of what is effective and appropriate through clinical effectiveness research. The accumulated results of research should be synthesized and extended through the clinical expertise of practicing physicians, and made easier to use in the form of practice guidelines. Through practice guidelines, we can provide information on appropriate care to physicians, patients, managers of care, reviewers, and regulators.

CLINICAL RESEARCH ON EFFECTIVENESS AND COSTS

Research and evaluation of medical procedures and practices allows us to determine whether they work, their costs, and for which patients they would be appropriate. Examples of this research include randomized clinical trials, analyses of current practice, and formal technology assessments such as cost-effectiveness analysis.

Except for pharmaceutical research to satisfy requirements for marketing new drugs, this work is largely supported by the federal government. A substantial increase in public resources committed to this work will be required if we are to develop the knowledge needed to improve medical practice and to slow the growth of health care costs.

Several examples will illustrate how clinical effectiveness research can provide the knowledge needed to improve medical practice. The "Effectiveness Initiative" recently launched by the Health Care Financing Administration (HCFA) includes development and analysis of data generated from medical practice, both Medicare claims and selected data from medical records. Analysis of this database can determine what services patients now receive and the outcomes that patients experience under alternative forms of therapy (Roper et al., 1988).[9]

Patient Outcome Assessment research projects supported by the National Center for Health Services Research and Health Care Technology Assessment (NCHSR) focus on a single medical disease or condition, determine how physicians now care for such patients, and evaluate alternative methods of diagnosis and treatment. Each project is also designed to develop and test ways to use the findings to influence medical practice, including development of practice guidelines. Several recent reports describe a patient outcome assessment project already underway to investigate benign prostatic disease (Wennberg et al., 1988; Fowler et al., 1988; Barry et al., 1988). These studies have already provided new information about the outcomes of prostatic surgery.

The National Institutes of Health (NIH) support a number of randomized controlled clinical trials each year to evaluate alternative treatments under carefully controlled conditions. A recent report from the Thrombolysis in Myocardial Infarction (TIMI) trial showed that patients with myocardial infarction who received a drug to dissolve clots did not also need "balloon angioplasty" (percutaneous transluminal coronary angioplasty or PTCA), an expensive and somewhat risky procedure to physically open the coronary arteries (TIMI Group, 1989). Adding angioplasty did not improve patients' outcomes.

The results of these studies of effectiveness can be applied to improve patient care. For example, the results of the TIMI trial suggest that most patients with myocardial infarction should be treated with clot-dissolving drugs but need not have the more risky and expensive invasive angioplasty procedure.[10]

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[9] It is perhaps surprising that we do not know the impact that particular medical practices have for patients' health. We also do not generally know what services are provided to patients with particular medical problems, or why these services were chosen.

[10] On a different level, effectiveness of alternative ways to organize the delivery of care is gauged through the techniques of health services research. For example, studies have demonstrated that for many procedures, patient outcomes are better in an institution where the procedure is more frequently

Clinical effectiveness research, like basic biomedical research, is a public good, and most of its funding will have to come from the federal government if it is to occur on a substantial scale. A small but very important amount of research is funded by private foundations, but the federal government is the only potential source of substantial new funding.[11]

Current federal funding for these activities is small. The Institute of Medicine estimated that the federal government spent about $480 million in 1984 for all health technology assessment, including $280 million for clinical trials (primarily NIH support), $100-150 million for health services research, and about $30 million for other assessment activities (Institute of Medicine, 1985). Federal support for all health care technology assessment in 1984 represented only 0.4 percent of federal health care expenditures, and a minuscule fraction of national expenditures for health care.

Several hundred million dollars in additional support could be productively spent each year to expand clinical effectiveness research.[12] The Institute of Medicine (1985) and the National Leadership Commission on Health Care (1989) have recommended similar increases. While this may seem like a large sum in a period of constrained budgets, the total proposed is less than one-tenth of one percent of the amount the United States spends on health care. It would enable us to improve quality of care and to use more efficiently the billions of dollars now spent. And if it saved only a fraction of expenditures for services that provide little or no benefit, the investment would be repaid many times over in reduced expenditures and improved care.

The traditional agencies of government are appropriate for conducting or funding this work: the National Institutes of Health, the National Center for Health Services Research, and the Health Care Financing Administration. These agencies have procedures to establish priorities, to assess the scientific merit and significance of proposals for investigation and to provide accountability for the use of public funds (U.S. General Accounting Office, 1988).

The private sector has several roles to play. Most of this research occurs in the private sector, in universities and other research institutions. The cooperation of

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performed (Luft et al., 1987; U.S. Congress, Office of Technology Assessment, 1988).

[11] The pharmaceutical industry funds extensive clinical trials as part of the requirements for marketing a new drug, and these costs can be recouped through sales of patented products. But most effectiveness research on medical practices and procedures does not yield new products. The results of these evaluations are generally in the public domain through the medical research literature for all to use in improving medical practice. If private funding were available to develop boundary parameters for use as review criteria, the parameters and criteria would likely be proprietary and unavailable to physicians and the patients whose care would be influenced by them.

[12] Several years would be required to "gear up" to this level, but substantial immediate increases could be well spent.

practicing physicians, patients, and payers is essential in building clinical databases from claims data and medical records (Roper et al., 1988; Ellwood, 1988). Cooperation of physicians and patients is also required for clinical studies, particularly randomized controlled trials.

PRACTICE GUIDELINES

Practice guidelines allow us to translate what is known about effective medical practice into improvements in care.[13] To affect medical practice, guidelines must be disseminated to physicians and incorporated into medical review. They will be most effective if they are developed through an open, structured process that produces clear and clinically specific guidelines. The medical profession should take primary responsibility for the development, dissemination, and use of guidelines, but public support will be required for a substantial and coordinated effort.

Practice guidelines are not new. They have long been used to provide clinical information to physicians. As Eddy points out, physicians follow informal guidelines or "clinical policies" in making many clinical decisions (Eddy, 1983). More formal guidelines include protocols for diagnosis and management of cancer and recommendations for the use of preventive services like screening mammography.

Guidelines for the use of a particular procedure specify when it is appropriate to use the procedure.[14] For example, guidelines for the use of coronary angiography specify which indications for the procedure would be appropriate, inappropriate, or equivocal (Chassin et al., 1987a). According to the guidelines developed by Chassin et al., it is appropriate to perform coronary angiography for a patient with nonspecific chest pain and a positive treadmill test, but inappropriate for a patient with stable mild angina who has a negative treadmill test result or has not had a treadmill test.

Developing Guidelines

The method used to develop the guidelines should insure that they accurately reflect existing knowledge of effective and appropriate care. The guidelines themselves should be clear, specific, and easy to use. They must also come from a credible source so that they will be used by physicians, patients, reviewers and others.

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[13] The topics in this section are discussed in greater detail in the papers prepared for the Commission's Conference on Practice Guidelines, held in October 1988 (Brook, 1988; Eddy, 1988; Lewin and Erickson, 1988; Hammons and Leape, 1988).

[14] It is useful to distinguish two kinds of practice guidelines. The first focuses on a particular procedure, such as coronary artery bypass surgery, and provides recommendations for how to use it. The second focuses on a particular patient problem, such as chest pain, and provides recommendations for appropriate care for a patient with that problem, including which services to provide. Examples of this kind of guideline are in Greenfield et al. (1975, 1977) and Stulbarg et al. (1985).

The method for developing guidelines must translate available knowledge of effectiveness from clinical research and the expertise gained through clinical practice into specific guidelines for patient care.[15] The method would include a critical review of the literature and a consensus process through which panels of expert physicians review the evidence and reach judgments on the appropriateness of possible indications for use of a procedure, or of alternative approaches to managing a medical condition. The decision making process should be explicit and allow participants and observers to understand how the judgments are reached.

To be clinically useful, guidelines must be unambiguous and specified in sufficient detail that they discriminate between what is and what is not appropriate care. The clinical rationale for the recommendations should be apparent. They must also take into consideration clinically relevant differences among patients and respect the role of clinical judgment in determining what is appropriate care.

Guidelines have recently been developed by researchers at the RAND Corporation (Brook, Chassin, et al., 1986) and by several specialty societies, most notably the American College of Physicians (White and Ball, 1985). Other specialty societies have begun to develop them. The Consensus Development Conferences of the National Institutes of Health yield assessments of technology that also provide recommendations for clinical practice (Mullen and Jacoby, 1985; Perry, 1987). Several of these methods, particularly those developed by RAND and by the American College of Physicians, could be improved by several simple steps to make the decision process more open and explicit and then used to develop additional guidelines (Eddy, 1988).[16]

Several academic medical centers working with RAND have developed a proposal to improve and test the method that RAND developed for setting guidelines (Blumenthal, 1989). The American Medical Association and RAND have entered negotiations to develop and test a small number of practice guidelines and parameters and to develop strategies for their dissemination (American Medical Association, 1989). The Council of Medical Specialty Societies is working with Dr. David Eddy to develop a manual specifying methods that member societies could use to develop guidelines. Activities like these, if adequately funded, could improve the methods and accelerate the development of sound guidelines.

Guidelines that are developed by the medical community are more likely to be used by physicians in their practices. For this reason, the medical profession should take much of the responsibility for developing them. However, support from the federal government will be needed to substantially increase the scope and pace of the work, and federal oversight could help establish priorities, insure the integrity of the process and the methods, and bring needed coordination to it.[17]

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[15] For an excellent discussion of methods and how they can be improved, see the background paper prepared for the Commission's conference on practice guidelines (Eddy, 1988).

[16] Eddy (1988) also describes additional improvements that could be made over the next 5 to 10 years, based on new research on decision processes and techniques for evaluation existing information.

Congress could select an existing agency or create a new agency in the Department of Health and Human Services to fund and coordinate these activities, or it could use an entity external to the federal government (Lewin and Erickson, 1988). Many believe that the Health Care Financing Administration would not be an appropriate place for this function since HCFA's role as a payer might lead the medical profession to doubt its impartiality. Another agency within or outside the government would be perceived as more objective.[18]

If the medical profession would provide the physician expertise required, tens of millions of dollars per year for five to ten years would yield sound guidelines (and review criteria consistent with them) for the most important surgical and technical procedures and the most common medical conditions. The first of these new guidelines could be available within a year or two. After the initial period, continued support would be needed for development of guidelines for new procedures and new uses of old ones, and for continual revision and updating of guidelines.

Dissemination and Incorporation into Clinical Practice and Review

To affect medical practice, the guidelines and review criteria must be disseminated and incorporated into physician practices and into the policies and practices of managed care organizations, reviewers, and payers.

Dissemination of guidelines and technology assessments have generally occurred in an unorganized and undirected way through the medical literature. It appears that, based on the limited evidence available, there has been little systematic incorporation of existing guidelines into practice or review (Greer, 1987). One study to assess the impact of the consensus statements from four Consensus Conferences of the National Institutes of Health concluded that though many physicians were aware of the statements, the effect on their behavior was small (Kosecoff et al., 1987). However, guidelines for the use of tests in the emergency department developed by the American College of Emergency Physicians were shown to improve use of the tests and to reduce costs (American College of Emergency Physicians, 1983).

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[17] The private sector might be willing to provide limited funding for development of guidelines and review criteria, but the results are likely to be proprietary (Lewin and Erickson, 1988). Physicians would then be unable to know the criteria by which they were judged, and beneficiaries unaware of these influences on the care they receive.

[18] Some argue that clinical effectiveness research and practice guideline development and evaluation are interrelated and should be administered by or coordinated through a single government entity.

Physicians. Guidelines provide a means for the physician community to respond constructively and effectively to expenditure targets by reducing services of least benefit to patients (Chapter 11). Further, they have a positive character that is consonant with the goals of physicians to provide efficient care of good quality.[19]

The medical profession should take a primary role in the dissemination of the guidelines and their incorporation into practice. If medical societies take an active role in disseminating guidelines and persuading physicians to use them, guidelines are more likely to be effective. Physicians who are involved in developing or adapting guidelines for their use are more likely to incorporate them into their practices (Berwick, 1989).

Funding by the federal government for the development of guidelines could be coupled with a requirement that the developers take responsibility for dissemination of guidelines and for efforts to increase their use by practicing physicians. The federal government should also support work to develop and test more effective ways of disseminating the guidelines. Federal funds could be used to support educational programs for physicians. As discussed in Chapter 11, these educational programs might be coordinated through physician organizations, PROs, carriers, fiscal intermediaries, and hospital medical staffs.[20]

Beneficiaries. Guidelines could also be used to inform patients or consumers, enabling them to be more effective partners in decisions about their care. Consumer behavior may not come easily to patients, particularly to Medicare beneficiaries (Hibbard and Weeks, 1987). Nevertheless, the potential for patient education to improve use of services should be explored. Public funding could support medical and beneficiary organizations to disseminate guidelines designed for use by beneficiaries and programs to help beneficiaries understand and use them.

Review Criteria. The criteria used by PROs, carriers, and fiscal intermediaries for utilization and quality review need to be improved and made more explicit (Chapter 13). Sound practice guidelines may provide the most promising way to improve the clinical basis for review, making these judgments more accurate.[21] Also, guidelines used to inform physicians will be reinforced if they are also used as the basis for review of utilization and quality.

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[19] Chapter 13 describes a project directed by the American Medical Review Research Center (AMRRC) to provide physicians with information on appropriate practice with specific data on their own use of services. This combination of information on recommended practice with "feedback" on actual practice can enhance the effectiveness of guidelines on physician practices.

[20] Guidelines and review criteria could be integrated into the programs for hospitals and medical staffs of the Joint Commission for Accreditation of Health Care Organizations (JCAHO).

[21] For example, guidelines for use of procedures could be used by PROs in mandated preprocedure review of pacemakers and other elective procedures, or as an alternative to second opinions.

Guidelines used for review and payment must be applied flexibly to account for variation in clinical factors and local availability of medical resources and to acknowledge the important role of the physician's clinical judgment. Because guidelines cannot anticipate every possible variation in patients' clinical characteristics, the attending physician's clinical judgment is crucial. Inflexible application of guidelines in utilization review will result in denial of necessary care to beneficiaries as well as payment to physicians.[22]

Dissemination and use of review criteria consistent with guidelines should be the responsibility of HCFA and the fiscal intermediaries, carriers, and PROs, with adequate funding provided for these activities (Chapter 13). PROs could also develop educational programs that complement their review activities.

Evaluation and Revision of Guidelines

Individual guidelines and the strategy described here to use them to improve medical practice should be evaluated and the results used to revise guidelines and modify the strategy used to disseminate them.

Evaluation of individual guidelines should measure effects on both the process (the services provided) and the outcomes (morbidity, mortality, patient satisfaction, and cost) of care. A guideline may be ineffective because it fails to affect physician practice or because, when followed, it does not improve the outcomes of care. Methods of evaluation that could be used include randomized controlled clinical trials and nonrandomized trials using the analytical tools of epidemiology to measure impact.

Guidelines should also be periodically revised to incorporate new knowledge gained through clinical effectiveness research or clinical experience. Introducing and using guidelines will provide information about the effectiveness of the practice or procedure involved, as well as the effects of the guideline itself.[23]

Evaluation of the strategy to use guidelines to improve care should focus on whether guidelines have influenced medical practice and whether changes in practice in turn have improved the quality and efficiency of care. Such evaluations would assess how well different kinds of guidelines work, which means of dissemination lead to use of the guidelines, the influence of incentives on whether physicians and patients use them, and whether guidelines have a greater effect when used voluntarily or used in external review. Ultimately, this type of evaluation is needed to determine whether the degree of success merits increasing or decreasing the resources committed to this strategy.

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[22] When used to review utilization and quality of care or to determine payment, practice guidelines should be applied as screens to select cases for which services are more likely to be used inappropriately, with the final judgment reached through peer review that can also take additional factors into account.

[23] The introduction of a guideline for a procedure can be viewed as a clinical trial of the guideline as well as of the procedure. The guideline is intended to affect practice, and use of the guideline will influence physicians to use the procedure in a systematic way that facilitates evaluation of effects of the procedure. In fact, Berwick (1989) has argued that practice guidelines provide the specifications for care that are needed if we are to systematically learn what is effective in clinical practice and what is not. In this sense, guidelines are analogous to the experimental protocols that are followed in a controlled clinical trial.

Though past efforts to change physicians' practices have met with varied success (Eisenberg, 1986; Schroeder, 1987; Lomas et al., 1988), practice guidelines have the features that have been found to influence physicians most. Guidelines are scientifically based; they come from a physician's peers in the medical community; and they are specific enough to provide information that a physician can use in his practice. If the criteria for Medicare review of utilization and quality are based on the guidelines, or if expenditure targets are established, then physicians will also have external incentives to use the guidelines.

ANTITRUST AND TORT LIABILITY

Medical associations and societies will play essential roles in the development, dissemination, and use of practice guidelines. They and their members have expressed concern that antitrust legal action might be brought against them by the Federal Trade Commission or the Justice Department for developing or disseminating guidelines.[24] It is uncertain how physicians' use of guidelines in their practices will affect their malpractice risk. The liability risk for medical organizations that develop guidelines and advocate their use is also unclear. Both the development and use of guidelines may be inhibited by these concerns. It has been suggested that the federal government provide additional protection for physicians and organizations that develop guidelines and for physicians who use them.[25]

According to testimony to the Commission from attorneys familiar with this field, medical organizations that develop scientifically sound guidelines and recommend them in good faith to their members without coercion are very unlikely to be subject to a successful antitrust or liability suit.[26] However, if guidelines were abused--for example, used to exclude certain types of practitioners from an area of medicine by sanctioning society members who referred patients to them--there would be grounds for suit.

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[24] There are similar issues about potential influences of antitrust and tort liability on the physician community's response to expenditure targets, discussed in Chapter 11.

[25] There are analogous questions about the development and use of practice guidelines and parameters when used as review criteria. However, there is already substantial legal protection for physicians when properly carrying out peer review on behalf of a medical staff, carrier, fiscal intermediary, or PRO, and for medical organizations that cooperate with these entities in developing criteria for use in review (see Chapters 11 and 13). This protection would apply also to development and use of new practice guidelines and parameters for review.

[26] Arthur Lerner, Esq. and Michael Pollard, Esq., in testimony to the Commission. See also the background paper prepared for the Commission by Mr. Lerner (1988) and the article by Bierig (1987).

Individual physicians who comply with guidelines developed in good faith and issued by a respected medical organization are more likely to be protected from malpractice judgments than exposed to them. Such guidelines may achieve the standard of expert testimony in tort proceedings. This, in turn, may discourage unfounded malpractice suits.

Based upon preliminary work, it is not clear whether or how the federal government should shield the developers of guidelines from antitrust and tort liability exposure or should provide tort liability protection for physicians who practice in accordance with accepted guidelines. However, the considerable fear and uncertainty in the medical community could prevent or slow the development and use of guidelines. The Commission will explore these questions in greater depth with the Justice Department, the Federal Trade Commission, and others expert in these matters in order to determine the degree of risk and what steps, if any, might be taken to reduce it.

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CHAPTER 13

PART B CARRIER AND PRO UTILIZATION AND QUALITY REVIEW

Medicare utilization and quality review programs should ensure that medical care provided to beneficiaries meets recognized standards of quality and is necessary, appropriate and cost-effective. But Medicare review programs, like those of other payers, were originally designed to focus on individual insurance claims, not to provide for the effective management of the complete range of medical care services that beneficiaries receive. Effective medical review will require that the Medicare program move toward a comprehensive system that looks across individual services and procedures to complete episodes of care, and systematically integrates information drawn from claims data, analyses of practice variations and peer review of physician practice.

This chapter describes the current responsibilities of the Health Care Financing Administration (HCFA) and Medicare contractors--carriers, fiscal intermediaries and Utilization and Quality Control Review Peer Review Organizations (PROs)--for utilization and quality review, evaluation and developmental studies. It discusses changes in current activities that are underway or planned. It then raises several issues that will require careful attention if HCFA is to build a comprehensive program of utilization and quality review, including the need to clarify the roles of carriers and PROs, the limited confidence of physicians in current review methods and the limitations of available review methods for ambulatory services. The Commission's recommendations are designed to address these issues.

RECOMMENDATIONS

HCFA should establish procedures to encourage input from carriers and PROs in designing criteria used in utilization and quality review, in developing physician profiling activities, and investigating physicians suspected of providing inappropriate or substandard care or billing inappropriately.

HCFA, carriers and PROs must work together to delineate the future roles of PROs in reviewing care provided by physicians in office settings.

HCFA should take additional steps to ensure that PROs and carriers consult with appropriate medical organizations when developing medical review criteria.

HCFA should designate a single entity to support research, demonstrations, evaluations, and technical assistance in quality and utilization review for carriers, intermediaries and PROs.

THE STRUCTURE OF RESPONSIBILITIES FOR MEDICAL REVIEW

Medicare is made up of a network of two very large separate but interconnected insurance programs.[1] These are administered by an agency with many central divisions and offices and 10 regional offices. The bulk of the work is performed by dozens of contractors, including 48 Part B carriers[2], 57 Part A fiscal intermediaries and 54 Peer Review Organizations.

HCFA contracts with intermediaries to administer Part A services, with carriers to administer Part B services, and with PROs to review quality and utilization in hospitals and several other settings generally reimbursed under Part A. There is, however, some overlap in responsibilities (see Table 13-1). For example, PRO review of post-hospital care services overlaps with intermediaries, and their review of inpatient services involves them in a large proportion of Part B expenditures. PROs also perform preadmission and preprocedure reviews for selected cases, thus overlapping with carriers. Most important for our purposes, PROs have also been granted legislative authority to review physician services provided under Part B, generally the province of carriers.[3]

The basic responsibilities of carriers and PROs are briefly reviewed here.

Utilization Review

Utilization review in the Medicare program is the process of ensuring that medical services are necessary and constitute an appropriate level of care.[4]

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[1] Part A, paid by the Hospital Insurance Trust Fund, covers primarily inpatient hospital, skilled nursing home facility, home health, and hospice services. Part B, paid by the Supplementary Medical Insurance Trust Fund, covers primarily physician and supplier services.

[2] These organizations hold 56 separate contracts (see Chapter 4).

[3] PROs were granted legislative authority to review physician services provided in office settings in the Omnibus Budget Reconciliation Act of 1986 (P.L. 99-509). The act also stated that such reviews could not begin until after January 1, 1989.

[4] "Level of care" refers to the intensity and/or site of care, such as home health services versus skilled nursing home care or outpatient rehabilitation or surgery versus inpatient care. Medical reviews seek to ensure that services are not provided in a setting which is more intensive than is medically necessary. For example, PROs will not approve payment for extended hospital stays for patients whose medical care could be provided in a nursing home or by a home health agency (where these "lower level services" are available).

Table 13-1. Major HCFA Medicare Contractors

Contractor	Medicare Service	Primary Responsibilities
Carriers	Inpatient physician visits/procedures Ambulatory physician visits/procedures Durable medical equipment Diagnostic testing	Claims processing* Utilization review Initiating sanctions for substandard or abusive practices
[beginning in 1990]	[Prescription drugs]**	
Intermediaries	Inpatient hospital care Outpatient hospital Skilled nursing facility Home health care Hospice Outpatient rehabilitation facility Part B outpatient physical therapy	Claims processing Utilization review Limited quality review (hospice, SNF, home health) Initiating sanctions for substandard or abusive practices
Common working File "Hosts" [fully in place by 1991]	[All Medicare A and B except drug claims]	Claims review/edit Limited utilization review Program monitoring (volume, costs, etc)
Prime Drug Data Centers [beginning in 1990]	[Prescription drugs]	Bill processing Limited utilization review
Peer Review Organizations	Inpatient hospital care TEFRA HMOs and CMPs Ambulatory surgical centers "Intervening" home health and skilled nursing facility care	Utilization review Quality review Verifying bill data Initiating sanctions for substandard care
	[Physician services on office settings]	[To be determined]

*Claims processing includes editing data submitted on claims, verifying eligibility and coverage, calculating reimbursement amounts, and paying claims.

**While prime drug data centers will process prescription drug claims, carriers will, at least for the short term, be responsible for keeping information on beneficiaries' deductible payments.

PROs, carriers, and intermediaries each have certain responsibilities for utilization review. In 1989, carriers will be responsible for about 400,000,000 claims. PROs will have about 11,000,000 Part A claims to screen. Carrier medical review is overseen by HCFA's Bureau of Program Operations (BPO), while PRO medical review is supervised by the Health Standards and Quality Bureau (HSQB).

Carrier, intermediary and PRO utilization review activities are based on the same regulations that establish Medicare's general requirement that services be necessary and appropriate. Contractors establish utilization review objectives and procedures for achieving these objectives through detailed negotiation with HCFA. Differences in the types of medical review tasks assigned to them, and in the volume of claims each must review, have contributed to the evolution of somewhat different approaches to conducting utilization reviews.

Carriers[5]. Carriers perform both prepayment and postpayment reviews of submitted claims. These reviews begin with computer analysis of all claims. Prepayment reviews are designed to (1) detect problems with individual beneficiary claims, (2) identify claims for services not covered by Medicare, (3) identify claims for types of services associated with utilization problems and (4) identify claims from physicians or suppliers known to have questionable practice patterns.

Carriers' medical reviews are conducted in close consultation with carrier medical staffs that include physicians, nurses, and other individuals with some medical or technical expertise. Carriers also employ physician consultants to review claims where specialized expertise is necessary. Some carriers employ only physicians in active practice as consultants, but this is not a program requirement.[6]

In contrast to PROs, carriers can suspend claims payment or issue payment denials without prior notification to the provider.[7] But a proposed rule issued by HCFA in January, 1989 would require that claims subject to medical review (in accordance with individual carriers' utilization review policy) may no longer be denied without review of all relevant information submitted with the claim. Carrier denials based on medical necessity or appropriateness criteria can be appealed by physicians--first for rereview by another health professional and subsequently through an administrative review process.[8]

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[5] The discussion here focuses on carrier activities, because they are most directly relevant to the issues of physician services. Intermediary and carrier and PRO pre and postpayment review activities are described in some detail in a 1988 GAO report on Medicare quality assessment and assurance activities (U.S. General Accounting Office, May 1988).

[6] Many carriers are Blue Shield organizations that were originally created by physicians and have retained close ties to the physician community. But it was not until 1988 that HCFA required all carriers to employ licensed physicians as medical directors.

[7] HCFA has specifically stated that the provision (stipulated in an April, 1987 notice published in the *Federal Register*) that "Only a physician can make an adverse determination and only after consultation with the attending physician" applies only to PROs. HCFA went on to explain that "[I]n practice, any claim initially denied by carrier or intermediary staff generally will be reviewed by qualified medical review staff using written guidelines developed by a physician if the denial is appealed or the claim is resubmitted with additional documentation. We believe this process is a reasonable one since mandatory physician review of all denials by carriers and intermediaries would be prohibitively expensive." (*Federal Register*, January 30, 1989, p. 4315).

The carrier postpayment review process includes preparing profiles of beneficiaries and providers, identifying patterns of fraud and abuse, educating providers about acceptable utilization norms and billing practices, initiating administrative action if necessary, and identifying areas where new prepayment screening could be effective. Carriers will do over 80,000,000 postpayment reviews in 1989 (Gagel and Morford, 1989).

Historically, most savings from the carrier medical review program have come from prepayment reviews, and prepayment reviews have been more heavily weighted in contractor evaluations than postpayment review programs.[9] Carrier representatives have suggested that the statutory requirements for prompt claims payment may have created a disincentive for utilization review activities that could slow the pace of claims processing (see Chapter 14).[10]

More recently, however, HCFA has instituted some changes designed to significantly improve carriers' post-payment review programs, including a $15 million increase in funding for this activity in fiscal year 1989. These additional funds are intended to promote a greater involvement of the medical community in medical review policy, and to fund more sophisticated data analysis. The recent addition of diagnosis codes to Part B claims and the introduction of a system of unique physician identification numbers should expand the ability of carriers to develop physician profiles and identify utilization problems.

It should be noted, however, that the administration's proposed budget would cut carrier medical review from $95.9 million budgeted for fiscal year 1989 to $77.8

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[8] If a carrier does not reverse a denial ruling, the next level of appeal is the fair hearing. These are chaired by hearing officers, who are typically attorneys. Providers and beneficiaries can appeal fair hearing determinations to administrative law judges, and ultimately to civil courts.

[9] Carrier budgets include more funding for prepayment than postpayment review activities. In fiscal year 1989, prepayment expenditures were budgeted at $67.4 million, compared to $28.5 million for postpayment review activities. As was discussed in the Commissions's 1988 report, carriers are required to report the program savings (payment dollars) achieved through medical review. Their evaluation standards call for, at minimum, an overall return of $5.00 for every $1.00 spent on medical review. Prepayment screens have generally returned about $10 per dollar spent, while postpayment reviews, which are more labor intensive, generally show lower returns (as measured by direct payment savings). HCFA's budget guidelines for carriers for fiscal year 1989 anticipated that approximately $975 million in program expenditures would be avoided by the full range of carrier activities designed to prevent payment for medically unnecessary services (*Federal Register*, September 2, 1988, p. 36498).

[10] The conflict between pursuing possible medical necessity or appropriateness problems and meeting claims processing timeliness standards was raised in testimony before the Commission by the Blue Cross and Blue Shield Association on February 8, 1989. In the Association's view, the definition of "clean claims" (those not returned to the provider for additional information) should be changed to exclude all claims that undergo medical review.

million in fiscal year 1990.[11] A reduction of this magnitude would clearly threaten the progress currently being made.

HCFA has also initiated several pilot projects designed to test more flexible approaches to developing and implementing medical review screens and criteria. In one project the carrier has subcontracted medical review functions to a private sector utilization review firm that is organized and run as a physician organization.

PROs. PRO utilization review efforts have been designed to assess the medical necessity and appropriateness of entire hospital stays and ambulatory surgery encounters. Each year, PROs review about 2.5 to 2.6 million medical records, about one fourth of all hospital discharges (Gagel and Morford, 1989). Although PROs were responsible for a set of five preadmission and preprocedure reviews under their second scope of work, almost 90 percent of PRO reviews performed through the end of 1988 involved retrospective examination of medical records by nurses or physician advisors.[12] Under their new scope of work, PROs are responsible for a specified set of ten preadmission or preprocedure reviews.

The PRO review process focuses on the medical circumstances of particular cases.[13] PRO "physician advisors" are required to be in active practice. PRO regulations require, prior to a formal denial decision, discussions with physicians by peers not involved in the original recommendation to deny payment.[14] This means PRO physician reviewers have more frequent contact with physicians than do carrier reviewers. Further, because PRO reviews involve all aspects of medical care, and because PROs are specifically required to make determinations about the quality as well as the necessity and appropriateness of medical services, PRO review requires extensive and direct involvement of medical professionals, generally registered nurses and physicians. Being "peer" organizations, PROs are required to be representative of the local medical community. It is not always the case, however, that program requirements ensure that PROs fully represent physicians in their review areas.[15]

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[11] Data supplied by the Bureau of Program Operations, HCFA, February, 1989.

[12] Office of Peer Review, Health Standards and Quality Bureau, Health Care Financing Administration, Monthly Peer Review Organization (PRO) Data Summary, February 3, 1989. The portion of PRO reviews focusing on the validation of diagnosis codes used in calculating hospital payments may be performed by registered medical records administrators or other medical records specialists.

[13] The proportion of hospital admissions which PROs determine to be medically unnecessary or inappropriate (and for which payment is therefore denied) is small. Through December, 1988, the proportion of all admissions denied was about 2 percent.

[14] In practice, however, PROs have not always used physicians from the same specialty as the reviewed physician to conduct reviews. This is a departure from true "peer" review in the view of some physicians. Over time PROs have increased their efforts to match cases that need to be reviewed to physician advisors certified in the appropriate specialty. But even by the fourth contract year the median percentage of cases matched to appropriate specialists was only about 30 percent, and there was a great deal of variation among PROs in their ability to match cases to specialists (U. S. General Accounting Office, November 1988).

PROs are required to profile both physician practice patterns and hospital utilization of services patterns. They must also identify physicians whose practices, as measured by utilization and outcomes measures, could indicate that they are providing unnecessary, inappropriate or substandard care. Currently, PRO denials of Part A payment for inpatient or ambulatory surgical services can also result in denials of related Part B payments. PROs' expanding review responsibilities have moved them increasingly into the domains of carriers and intermediaries.

PROs are thus already heavily involved in the review of physician services. They review all aspects of patient care in hospital and ambulatory surgical centers, including services billed separately under Part B. In 1987, physician payments for services provided in hospitals and ambulatory surgical centers accounted for 39 percent of all Part B medical charges and 53 percent of all surgical charges. Perhaps more important, most Part B physician payments are related to a hospitalization. PPRC analyses of 1986 data found that 79 percent of all physician payments were incurred for services provided within a period of 15 days prior to and 15 days after beneficiary hospital stays or outpatient surgery. Thus, expanding PRO review to include patient care immediately prior to and after hospital stays or outpatient surgery would involve PROs in the review of most Part B services.

Quality Review

The Social Security Act bars Medicare payment for items or services that are determined to be "substantially in excess of the needs of individuals or to be of a quality which fails to meet professionally recognized standards of health care."[16]

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[15] PROs are required to be "physician sponsored" or "physician access" organizations. A physician-sponsored PRO is defined in the law as an organization composed of "a substantial number of" licensed physicians who are practicing in the area. To meet the "substantial number" requirement, a PRO must be able to document that it is composed of at least 10 percent of the licensed doctors of medicine and osteopathy practicing medicine or surgery in the review area. The membership of a physician-sponsored PRO must also be "representative" of area physicians. To meet this requirement, a PRO must be able to document that it is composed of at least 20 percent of the licensed practicing physicians (M.D.s or osteopaths) in the review area, or demonstrate to HCFA, through letters of support from physicians, physicians' organizations or other means, that it is representative of area doctors of medicine, osteopathy or surgery. It should be noted, however, that PROs can claim as members physicians who receive letters informing them that they are members, unless those physicians notify the PRO that they do not wish to be counted as members.

[16] Social Security Act section 1862(d)(1)(C).

Further, institutional providers and suppliers of medical care must comply with Medicare standards for participation.[17]

The survey and certification program emphasizes structural and process measures of facility quality. This approach is designed to help ensure that health care institutions themselves play major roles in establishing the practices that assure good patient care. The surveys, however, have also begun to focus on the outcomes of care provided in Medicare-certified facilities. For example, a major project initiated by the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) is developing a set of patient outcome measures that it plans to incorporate into its quality assurance standards for hospitals.

Medicare does not have a certification system for physicians equivalent to that for institutional providers. The basic qualifications that entitle practitioners to receive Medicare payment are established through the various licensing systems governing professional activities. Therefore, the major mechanism HCFA can now use to identify physicians who are providing substandard care is the claims review process and the review of the data it generates.

Formally, Congress has given PROs the authority to review some or all of the professional activities of physicians and other providers Medicare pays. To date, however, PROs have been officially assigned review responsibilities only in these areas: inpatient hospital and ambulatory surgical center care, HMOs and CMPs with "risk" contracts, and "intervening" care provided to beneficiaries by skilled nursing facilities and home health agencies.[18] For other Medicare services, including most Part B services, responsibility for reviewing quality of care (apart from the necessity or appropriateness of specific services provided) has never been clearly assigned to any unit of HCFA nor to its contractors (U. S. General Accounting Office, May 1988). Carriers have been granted authority to deny payment and initiate sanctions for substandard, unnecessary or inappropriate care, but they have not been asked specifically to establish whether Medicare patients are being provided with the quality medical care they need.

Coordination of Carrier and PRO Activities

As the complexity and scope of utilization and quality review are increased, coordination among PROs, carriers, and intermediaries becomes more important. Intermediaries and carriers as well as PROs have been granted the legal authority to deny payment for Medicare claims and to recommend sanctions of providers for care determined to be inappropriate or medically unnecessary.[19] In the event that carrier or intermediary determinations regarding medical necessity, reasonableness and appropriateness differ from a PRO's, federal regulations stipulate that the PRO decisions overrule them.[20]

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[17] Medicare has delegated responsibility to the states to assure that institutional providers meet standards for participation. Most institutional providers are surveyed annually, while hospitals may be accredited for up to three years. About 70 percent of all U.S. hospitals are deemed eligible for Medicare participation by virtue of their accreditation by the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO). The remainder, certified by HCFA for Medicare participation, are mostly small, rural community hospitals. (Office of Technology Assessment, June 1988).

[18] PROs also have separate contracts to review hospital inpatient care covered by CHAMPUS (the Department of Defense health insurance program), which is now operating under a prospective payment system very much like HCFA's. The CHAMPUS contracts will run from 1988 to 1990.

There is now limited formal coordination between PROs and carriers. PRO denials, like intermediary denials, trigger carrier reviews of claims for services provided in conjunction with the denied inpatient stays. Carriers are required to notify PROs about severe or longstanding problems with physicians or suppliers that have led to formal reviews or sanctions.

But the basic utilization review activities of carriers and PROs are largely independent. Further, HCFA regional and central offices compartmentalize oversight of carriers, intermediaries, and PROs. Consequently, problems discovered by one contractor have not been routinely communicated to other contractors reviewing related claims. Carriers and PROs can investigate the same physician without being aware of it.[21]

Evaluation and Research

The decentralized organization of program and contractor operations has generally led HCFA to concentrate its evaluation resources on individual contractor performance, rather than on utilization and quality review methods. There has been a perception by carriers that, at least until recently, HCFA has not rewarded carriers' efforts to develop innovative utilization review methods. Efforts to improve utilization and quality review also suffer from budgetary constraints.

Reports from the Office of Technology Assessment (OTA), U.S. General Accounting Office (GAO), and HHS Office of the Inspector General have faulted HCFA for not systematically assessing the quality review methods being used by PROs (U.S. General Accounting Office, May 1988; Office of Technology Assessment, June 1988; U.S. Department of Health and Human Services, Office of the Inspector General, August 1988). Similar criticisms have been made of HCFA's oversight of carrier utilization and coverage review.[22] OTA, GAO, and ProPAC, along with number of private sector spokesmen, have recommended that more be done to assess the validity of measures, criteria, and standards being applied, as well as the effectiveness of quality review regarding the outcomes of care provided to beneficiaries (*Medicine and Health*, 1988; U.S. General Accounting Office, May 1988; Office of Technology Assessment, June 1988; Prospective Payment Assessment Commission, March 1988).

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[19] Federal regulations also state that neither carriers nor intermediaries may make determinations about the appropriateness of services reviewed by PROs, but they are specifically granted authority to make coverage and reimbursement decisions (including denials of payments for services not meeting professional standards of care) for services not subject to PRO review.

[20] The coordination of PRO and intermediary reviews is an important case in point. PRO review now covers "intervening care" received after hospital discharges that are followed by readmissions within 31 days. At the same time, intermediaries continue to be responsible for reviewing medical necessity and overutilization of post-hospital services. PROs are responsible for reviewing the appropriateness of the services and care settings (functions often considered part of utilization review) as well as the timeliness of services and the quality of care provided in post-hospital settings. But HCFA has determined that intermediaries, not PROs, will make decisions to actually deny payment for the intervening care services as well as any other institutional services they normally review.

[21] The General Accounting Office recommended in 1988 that HCFA develop guidelines for the systematic and timely reporting by carriers and intermediaries to PROs of possible problems in quality of care provided in ambulatory and post-hospital settings. HCFA has not yet formally complied with this recommendation (U. S. General Accounting Office, May 1988).

In response to growing concerns about program costs, the volume of services being paid for, and the quality of care provided to beneficiaries, HCFA has embarked on a series of research initiatives, including its large scale "Effectiveness Initiative" (Roper et al., 1988). Ambitious research projects and studies are being conducted in HCFA's Office of Research and Demonstrations (ORD)[23] and HSQB.[24]

Coordination between HCFA's operations divisions and ORD has been increasing. ORD has not, however, been extensively involved in the evaluation of PRO assessment methods, nor in secondary analyses of quality or utilization data generated by PROs (U.S. General Accounting Office, May 1988). HSQB's Office of Medical Review and a new group, the Office of Program Assessment and Information, are conducting several studies involving extensive analysis of HCFA billing data and clinical information collected by PROs from medical records.[25] [26]

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[22] GAO raised the issue of insufficient analysis of carrier prepayment screens in 1983 (U.S. General Accounting Office, February 1983). In their report, GAO recommended that HCFA compare all the carrier utilization edits, identify the most effective ones, and require all carriers to use them unless it was demonstrated that there was a valid reason for not doing so.

[23] ORD is supporting studies on the effects of Medicare prospective payment on patient care, alternative methods for adjusting for severity of illness in studies of medical outcomes, and developmental work on assessing care in HMOs. It is also supporting several projects mandated by the Congress, including a study of quality assurance in the Medicare program being conducted by the Institute of Medicine.

[24] The Bureau of Program Operations (BPO) has initiated several pilot studies involving carriers' use of innovative or substantially reorganized medical review systems. These projects are not designed as research studies. But while BPO has not conducted or commissioned substantive research on utilization review of Part B services, it has created an intramural group that reviews local carrier screens in detail and makes recommendations for revising mandated screens.

[25] The Office of Medical Review is responsible for an ongoing project to examine small area variations in utilization and outcomes of hospital care among Medicare beneficiaries. In the first phase of this project, PROs in 12 states are being provided with software and training to track variations in physician and hospital practice patterns. While the system is being expanded to all the other PROs, the original 12 will work on developing educational feedback programs for local practitioners. It is hoped that this "hands-on" approach will help PROs target utilization and quality problems more effectively, and will provide a means of integrating local physicians into the peer review process, thereby eliciting voluntary changes in physician practice that result in more efficient and effective use of medical services.

MOVING TOWARD COMPREHENSIVE UTILIZATION AND QUALITY REVIEW

The Medicare program needs to create a comprehensive medical review system. If utilization and quality review is to be more effective in controlling the growth of Medicare expenditures, it will have to move beyond the review of individual Part B claims. To ensure that Medicare services are effective and of high quality, medical review systems need to look across individual services and procedures to complete episodes of care. They will also need to systematically integrate information drawn from claims data, analyses of practice variations, and peer reviews of physician practice.

A comprehensive Part B utilization and quality review program requires:

- a structured medical peer review process, based on the application of professionally recognized standards and criteria, to make determinations about (1) the necessity, appropriateness and quality of physician services in all settings, and (2) the ability of individual practitioners to meet professional standards;
- close interaction between Medicare peer review programs and peer review programs in hospitals and other health care organizations;
- coordination of peer review and claims processing activities related to utilization review, including the participation of PRO and carrier physicians in designing prepayment and postpayment screening, developing preadmission and preprocedure certification systems, and establishing claims review objectives;
- access for both PRO and carrier staff to complete Medicare Part A and B data files, and provision of the technical resources required to use these data; and
- an ongoing research, demonstrations and technical assistance program specifically dedicated to utilization and quality review.

Creating a comprehensive medical review program for Part B services would require some basic changes in PRO and carrier operations. Building a knowledge base for assessing the effectiveness of medical care will take time (Chapter 12). Major changes in current programs could involve substantial start-up expenses, as well as administrative problems. Resources will be required for both long-term investments in restructuring medical review and addressing more immediate problems of

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[26] The Office of Program Assessment has also begun a series of studies that use Medicare billing data and PRO medical records data to examine the use of services and care outcomes of alternative treatment approaches for specific conditions. A pilot project to link Medicare claims data to PRO medical record data in order to examine six procedures and conditions is nearly completed. See Roper, et al., 1988. Another project will identify a "Uniform Clinical Data Set" that could provide sufficient information on impatient records to support both special studies and routine monitoring of the effectiveness and quality of care provided to Medicare beneficiaries.

inappropriate utilization. Nevertheless, the direction toward which Medicare review should begin to move is clear.

ISSUES

There are several basic issues that need to be considered now, so that planning for reforming utilization and quality review proceeds in the right direction.

The Need to Clarify the Goals of Medicare Part B Medical Review

Because of the way that medical review systems have evolved, it is hard to determine how the varied and occasionally conflicting goals of medical peer review and utilization review are supposed to fit together. The Medicare program needs to clarify to what extent review activities are supposed to (1) focus on identifying and disciplining problem providers, (2) intervene to prevent substandard or inappropriate care, (3) develop and disseminate information to the local medical community, or (4) ensure that the Medicare program pays only for those services it is designed to pay for. Without clearer direction and focus, efforts by PROs, carriers and intermediaries to develop good working relationships with the wider medical community might not succeed.

On one level, the basic goals of medical review performed by carriers in support of claims processing are straightforward: prepayment and postpayment review are designed to identify individual claims that do not meet Medicare criteria for payment and to identify providers who are systematically abusing the Medicare program by providing services that are unnecessary, inappropriate, or that do not meet professionally recognized standards of care. However, the Medicare program does not define what constitutes reasonable or appropriate care and what meets professional standards. Thus, there is considerable room for discretion on the part of carrier medical review staffs, and for disagreement between carriers and providers.

The specific delegation of responsibilities to the PROs for ensuring the quality as well as necessity and appropriateness of Medicare services has added another level of ambiguity to the process of medical review. PROs are reviewing some of the same services as carriers, but PROs have a somewhat different approach to review, reflecting somewhat different goals. PROs use criteria and methods developed independently from carrier reviews, are under the supervision of a different HCFA division, and have a different contractual structure that focuses their efforts differently. Under current conditions, PRO review of Part B services provided in office settings would undoubtedly increase levels of ambiguity, inconsistency and frustration.

Lack of Confidence in Medical Review Methods and Criteria

Uncertainty about what Medicare peer reviewers are being asked to do is compounded by lack of confidence in the methods and review criteria[27] they use. Carriers and PROs draw on the expertise of physicians in developing their review criteria, and they frequently discuss utilization and coverage policy issues with medical organizations and specialty groups. Specific review criteria have often been drawn from criteria developed by medical professional or specialty organizations. Until recently, however, there has been little direct, systematic involvement of physician organizations in the development or refinement of either PRO or carrier review methods and criteria.[28] In fact, there has been very little information available about what the review criteria used by PRO or carrier medical reviewers are, much less how "good" they are (in terms of validity, reliability, sensitivity, consistency with good medical practice, and cost effectiveness). This has probably reinforced doubts about the legitimacy of the review process.

Recent policy changes provide an opportunity to create a more open and possibly more effective approach to utilization and quality review. PROs are required, under the conditions of their scope of work, to request input on their review criteria from physicians and other health care practitioners. They are also required to send the criteria they develop to state medical organizations, and to make them available to anyone requesting them. Carriers are also required by law to provide descriptions of the written policies they use to make medical evaluations and payment decisions to any individual requesting them.[29]

HCFA has also proposed rules for developing new utilization review policies (*Federal Register*, January 30, 1989). Under these rules, Medicare carriers and intermediaries would be required to solicit comments from the local medical community when they are developing new policies that could result in medical necessity payment denials. The proposed rule also states that 30 days prior to implementation, carriers must notify the local medical community of their responses to the comments, the final policy, and any documentation requirements physicians would need to know about.

Involving the medical community in developing utilization and quality review criteria should lead to better criteria, and to better understanding and acceptance of contractor medical review processes. This more open approach should be monitored closely. It would be particularly important to see whether local medical communities become actively involved in reviewing and commenting on the review criteria, and whether the carriers and medical community can work together effectively. Releasing information about carriers' medical review policies should make it possible for medical and research organizations to conduct comparative analyses of alternative review criteria. Such studies could complement ongoing HCFA analyses by helping point out specific weakness in current programs, explaining differences or inconsistencies among carrier review policies, and identifying effective policies that should be implemented programwide.

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[27] As discussed below, we are distinguishing here between medical review criteria and screen parameters. By review criteria, we mean the decision rules applied by medical professionals in determining what does and does not constitute appropriate medical treatment. Screening parameters are the number of services or visits or the specific combinations of case characteristics that trigger the selection of a claim for manual review by a person with appropriate medical background.

[28] In one state pilot study, a state medical society is working with the carriers' data to develop specific medical review parameters for a range of services. These parameters will be used not only to identify cases for manual review, but also as the basis for denials of certain claims.

[29] They are not required to release the specific screen parameters (that is, numbers or types of services) that trigger pre- or postpayment reviews.

Limitations of Current Methods for Reviewing Physician Services Provided Outside of Hospital Settings

Planning a role for PROs in the review of physicians' services is an intimidating but very important task. Unlike reviews of medical care provided in hospitals or other institutional settings, reviews of ambulatory care provided by independent practitioners cannot be built on an established institutional structure subject to government regulation. There are no utilization review or quality assurance committees overseeing the office practice of independent fee-for-service physicians as there are in hospitals and HMOs. Professional values and responsibility alone have not fully protected either beneficiaries or the Medicare program against the ineffective or inappropriate provision of services. Further, there is only limited evidence regarding the effectiveness of the review methods currently available to PROs for reviewing ambulatory services.

The scope of the task is enormous. With almost 100 times as many physicians as hospitals to review, basic profiling and problem identification tasks alone will be technically difficult and expensive. Devising programs to disseminate review findings and to positively influence physician practice is beyond the PROs' current capacity.

Given these problems, it is particularly important that planning efforts and the development of research and evaluation methods be given a high priority before PROs are expected to take on additional responsibilities.

AREAS FOR REFORM

The Commission has identified four areas for policy reforms. The first two are concerned with clarifying PRO and carrier responsibilities, the third with increasing the role of the medical profession in developing medical review criteria, and the fourth with research, evaluation, and technical assistance for contractors involved in medical review.

Clarify PRO's Role in Making Part B Determinations

PROs are already involved in the review of physician services. They are profiling physician practice patterns, and identifying physicians whose practices, as measured by utilization and outcomes measures, indicate that they could be providing unnecessary, inappropriate or substandard care.

PROs' focus on quality and outcomes of care has also led to a growing recognition of the importance of reviewing episodes of care in their entirety, including care provided prior to admission and following discharge from the hospital, and both Part A and B services. Such review would logically include physicians' services. Defining PROs' responsibilities with respect to Part B services would be a prerequisite for their assuming a major role in evaluating the effectiveness of medical care provided across all service sites.

While it is reasonably certain that HCFA will increasingly involve PROs in the review of physician services, it is not obvious how best to allocate review responsibilities among carriers and PROs. The clarification of roles of Medicare's several contractors offers a chance to rationalize Part B medical review.

Working Within the Current Medicare Structure of Responsibilities. One option for increasing PROs' role in the review of Part B services would be to focus on developing sound review criteria, and, simultaneously, to assure that carriers and PROs communicate with each other when applying medical review criteria. Under this option, carrier medical review responsibilities would not be changed. PROs' role in the review of physician services would be limited to the review of quality of care and utilization problems uncovered in retrospective reviews, as it is in PRO reviews of intervening care provided by home health agencies and skilled nursing facilities.

This option requires the least amount of functional or administrative reorganization and associated start-up expense. It may also be more administratively efficient than the alternative options discussed below, at least in the short term. Keeping medical review functions closely tied to coverage and claims processing functions should provide for more rapid transmission of data and supporting information as well as better coordination of decisions.

HCFA has argued that it may be premature to reorganize PRO and carrier medical review activities or begin efforts to introduce more consistency among the different review programs. Because few specific practice guidelines suitable for use in review are yet available, medical review is currently a process worked out at the local level. Until widely accepted practice guidelines and review criteria are developed, it is argued, a more pluralistic approach in which PROs, carriers and the medical community devise their individual approaches is preferable to a more centralized or standardized approach to defining medical necessity, appropriateness and quality.

These arguments are not entirely consistent with the goal of developing a more comprehensive system for ensuring appropriateness and quality of medical care. Given the difficulty of devising and applying credible methods and criteria, it may be inefficient, and possibly counterproductive, to encourage the independent evolution of two distinct systems for medical peer review. It is likely to be unworkable in practice to maintain a carrier/PRO distinction between "necessity and appropriateness" determinations and "quality of care" determinations (as is currently the case with intermediaries and PROs reviewing intervening care provided by home health agencies and skilled nursing facilities).[30] By the same token, segregating "quality" from carriers' review functions is also inefficient. Carriers, who provide not only the vital functions of claims processing and claims review, but also the implementation of screens and profiles, could take an active role in assessing the quality and effectiveness of care provided to beneficiaries, just as peer review organizations could be involved in the design of screens and profiles, and in the analyses of claims review data.

Establishing PRO Review Authority for Part B Services. Other options for integrating PROs into the review of physician services would require changing the structure of medical peer review responsibilities in the Medicare program. PROs could, for example, take on certain review functions in cooperation with, or as subcontractors to, carriers. As noted above, HCFA is currently conducting a pilot study in which carrier medical review functions are being subcontracted to a private sector firm. Many PROs already hold contracts with local organizations to perform private sector utilization review.

Completely integrating PRO and carrier medical review would be very complicated, and is not, in the short term, administratively feasible. Engaging PROs in denial appeals is more realistic, although probably not feasible without several years of planning, testing and evaluation.[31] Even this, however, could create administrative and operational problems. Both carriers and PROs are already involved in complicated systems for negotiating their medical review objectives with HCFA. Depending on how it was implemented, integrating PRO and carrier review functions could further complicate the negotiation process. As noted above, PROs and carriers are supervised by different HCFA bureaus, which might also lead to administrative complications when working out coordinated review strategies.

The fact that PROs have not had any experience with Part B quality and utilization review presents some problems related to their ability to cooperate effectively. PROs are not necessarily familiar with carrier medical review operations. There could be friction between PRO and carrier medical review staffs, who have adapted to the local carrier environment shaped by the constraints of HCFA oversight, and therefore emphasize coverage decisions and cost containment calculated on a per claim basis. In contrast, PROs have been focusing more directly on the identification of problem providers.

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[30] Medical peers also need to be involved in discussion of Medicare coverage issues. This may be particularly critical in the development and implementation of practice guidelines. In situations in which coverage issues cross-cut decisions about medical appropriateness or necessity, there is clearly a need for structured medical peer involvement.

[31] Carriers are already required to use "new" reviewers, i.e. physicians not involved in any way in the original denial determination, in appeals of Part B medical necessity denials.

More basic than these operational issues are the problems related to the amount of work involved for PRO peer reviewers.[32] Carriers currently use medical staff to review only a small proportion of all claims,[33] but carrier physicians review all medical denial appeals. Carrier physicians must also participate in "fair hearings" requested by physicians wishing to appeal decisions made in the first level reviews, and, if necessary, in the administrative law proceedings that constitute the highest level of physician appeals of carrier determinations.

In fiscal year 1988, carriers made decisions on 5,705,831 cases in which providers or beneficiaries requested reviews of denied claims, and participated in 50,301 appeals hearings (an additional 17,331 hearing requests were dismissed or withdrawn).[34] Hearings and reconsiderations have increased significantly in the past two years, and HCFA anticipates an increase of about 10 percent in the Part B reviews and hearings workload for fiscal year 1989.[35] Only a relatively small proportion of appeal activities, however, concerned medical necessity issues.[36] Although the number of administrative law appeals (the highest level of appeal) is very small (527 carrier cases were referred to administrative law judges in the first quarter of fiscal year 1989[37]), the process can occupy considerable professional time. Carrier physicians and consultants are accustomed to dealing with provider appeals.[38] If PROs used the same physicians, a transition would probably be fairly smooth. But if for some reason those physicians currently working as carrier consultants were not willing to work for the PROs, it might be difficult to recruit enough PRO physician advisors to do the work.

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[32] The development of practice guidelines (see Chapter 12) should reduce inconsistency and streamline review processes. The guidelines should reduce the variation and indecision about what constitutes appropriate practice, and provide clear decision rules for peer reviewers. The extent to which better practice guidelines will reduce disagreements about medical review determinations and the overall incidence of claims appeals is, however, unpredictable.

[33] HCFA does not keep statistics on the actual number of claims reviewed by nurses, other health care professionals (e.g. physical therapists) or physicians (U.S. General Accounting Office, May 1988).

[34] Health Care Financing Administration, Carrier Appeals Report, July-September 1988, Tables A and B.

[35] *Federal Register*, 53 (182) September 20, 1988, p. 36497.

[36] HCFA does not maintain statistics on review requests by reason for denial (i.e. medical necessity versus coverage, reasonable charge, or other reason) for physician services. In fiscal year 1988, carriers disallowed 64,739,248 claims in whole or part (17.2 percent of all claims processed), accounting for $7,328,949,313. Of these disallowed charges, 13.9 percent were based on determinations that the services provided were not medically necessary (Carrier Reasonable Charge and Denial Activity Report, July-September, 1988, Table D). Reasons for hearings are reported by HCFA: in fiscal year 1988, 24.0 percent of all hearings held dealt with medical necessity issues (Carrier Appeals Report, July-September 1988, Table F).

[37] Data supplied by the Bureau of Program Operations, HCFA, February, 1989.

[38] The administrative law appeals are, however, new to carriers; physicians were given this right to appeal Part B denials beyond the level of fair hearings beginning in 1988.

It is also possible that, at least in the short term, PRO review of physician services could increase program costs. This could happen if PRO involvement caused delays in finalizing payment decisions, led to an increase in provider appeals,[39] or led to the elimination or moderation of more restrictive carrier interpretations of Medicare payment regulations without generating offsetting savings by denying payments for unnecessary, inappropriate or substandard care. It should be noted, however, that appeals of carrier denials now frequently lead to reversals of the denial decisions (often as the result of additional information supplied by physicians). In fiscal year 1988, 56.9 percent of initial carrier reviews requested by providers and beneficiaries and 57.5 percent of hearings resulted in reversals.[40] Given such difficulty in making denial determinations, the extent of the problems that might arise when PROs review Part B services is particularly difficult to estimate.

Coordinate Carrier and PRO Reviews of Physicians

Coordination of PRO and carrier utilization review includes four related sets of activities:

Involving PROs in the Design and Assessment of Carrier Screens Related to Part B Physician Services Included under PRO Review. PROs should be involved in the process of designing Part B utilization review activities related to the services they review. Coordinating carrier and PRO physician screening and profiling could increase the overall efficiency of both programs by pooling the data and analytical resources and the medical review expertise of both sets of organizations.

Reviewing Carrier and PRO Utilization Review Objectives and Methods to Ensure That They Are Complementary. It does not make sense for carriers to establish utilization review objectives in an area without drawing on the knowledge of PROs, and vice versa. Medical peers also need to be involved in discussion of Medicare coverage issues. This may be particularly useful in the development and implementation of new standardized review criteria based on practice guidelines. In situations in which coverage issues cross-cut decisions about medical appropriateness or necessity, there is clearly a need for structured medical peer involvement.[41]

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[39] On the other hand, carrier physician reviewers are faced with a rapidly growing number of appeals of denial reviews, some of which seem to be prompted by a belief that the review process is so arbitrary that it is worth a try to appeal any denial. If the review of physician payments was seen as a more structured, rational peer review process, and the outcomes of reviews were based on the consistent application of reasonable review criteria, perhaps the total volume of physician review would begin to decrease.

[40] Carrier Appeals Report, July-September 1988, Tables A and B.

[41] HCFA's proposed rules for making medical services coverage decisions that relate to health care technology include a provision for annual meetings of the medical directors and other officers of all carriers, intermediaries, CMPS and HMOs, and PROs, as well as regional HCFA staff, to review all aspects of the Medicare coverage process, including new coverage policy decisions (*Federal Register*, January 30, 1989).

In the worst instance, lack of consultation and coordination could lead to the development of conflicting review objectives.[42] Or, if the two organizations independently focus on similar objectives, neither the organizations themselves nor HCFA (which must evaluate their performance) would be able to tell which activities actually produced a desired change in physician practice or utilization of services.

Coordinating PRO and Carrier Intensified Reviews of Physicians Suspected of Providing Unnecessary, Inappropriate or Substandard Care. Coordination between carrier and PRO medical staffs in the intensified review of providers (facilities or individual physicians) suspected of providing unnecessary, inappropriate or substandard care seems an obvious and relatively easy first step in creating an integrated medical review program. Some coordination, in the form of information-sharing and notification of findings, is already required. More structured coordination could lead to greater efficiency and could help protect beneficiaries against substandard care. Suspect providers could be placed under the scrutiny of both Part A and B claims processors and a single team of peer reviewers representing both carriers and PROs. This could be done when a problem is initially detected, rather than after one set of reviewers has concluded their investigation. More important, a coordinated intensified review process would ensure that consistent professional peer standards are applied in all reviews.

Giving PROs Access and Resources to Obtain Carrier Physician Profile Data to Supplement the Data They Can Develop from Hospital-based Claims Information. Having PROs work with carriers' Part B claims data is consistent with their statutory role as the entity with ultimate responsibility for ensuring the appropriateness and quality of Medicare services. PROs have already begun to experiment with the new merged A/B files, with which they can identify aspects of "intervening care" associated with inpatient reviews. Increasingly, PROs are focusing on the complete episode of illness, rather than what happened during a specific hospitalization. Being able to work more closely with carrier data could help PROs expand their reviews to identify problems with physician services before and after hospitalizations.

Carriers--and when they are ready, the regional "host" carriers maintaining the A/B working files (see Chapter 14)--need to retain the primary responsibility for maintaining and working with the Part B files, for providing expertise on matters such as building profiles, for developing screening algorithms, and so forth. However, if PROs are to take an active role in Part B utilization and quality review, carriers' relationship to PROs would need to become more like their current relationship with intermediaries. Carriers or the regional working file centers would have to take a larger role in analysis than do intermediaries, due to the difficulty involved in using the huge and complex Part B files. Instead of simply giving PROs complete tape files, carriers would need to provide PROs with the specific analytical files and supplementary materials they need to establish utilization and quality review objectives and to identify providers requiring intensified review.[43]

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[42] For example, some physicians have argued that the carrier screen that flags for review all physician visits in a month after the first visit to a given patient residing in a nursing home may have the effect of deterring physicians from visiting these patients. If this leads to physicians not identifying or treating an infection or illness that subsequently results in a hospital admission, it might be argued that the screen that saves Part B dollars in the short run not only leads to the payment of far larger amounts for Part A hospital stays, but also to larger physician payments associated with these hospital stays.

To work effectively with carriers, PROs would need some flexibility to experiment with data and methods (see below). They and the carriers would also need funding to obtain and develop the new types of analytical files that will be needed for better utilization and quality review. One way this could be accomplished would be to provide PROs with funds targeted for the purchase of specialized data from carriers. If carriers could "market" additional analytical services to PROs, they would have increased incentives to devise innovative methods for working with claims data.

Increase Involvement by the Medical Community in the Development and Implementation of Utilization and Quality Review Methods and Criteria

The process for developing Medicare peer review standards and criteria should include active involvement of medical care and professional organizations.[44]

Medical Specialty and Professional Organizations. One way to increase professional involvement would be to create a formal process by which PROs and carriers could consult with appropriate organizations. These could be designated by the American Medical Association, the Council of Medical Specialty Societies, the American College of Physicians, or American College of Surgeons. They could also be designated by a federal entity such as OTA or the Office of Health Care Technology Assessment or by the carrier or PRO, in consultation with HCFA. In any case, new or revised protocols should be submitted for comment to the specialty society or societies most directly affected. The draft rules issued by HCFA on January 30, 1989, would be an important step toward accomplishing these goals for new utilization review criteria developed by carriers and intermediaries. The same requirements should apply to PRO review criteria.

Requiring review of protocols or criteria sets used to assess appropriateness, necessity or quality of care by the appropriate medical organization would increase the accuracy and integrity of the peer review process. This would be particularly important for criteria used to review physician services provided outside of the hospital; many fee-for-service physicians are not accustomed to this type of peer review, and may be skeptical of the motives and methods of reviewers. The process of developing practice guidelines discussed in Chapter 12 is intended to ensure that the medical community has confidence in the guidelines.

Serious problems could arise, however, if medical organizations were unwilling or unable to provide useful feedback on the criteria being used by carrier or PRO reviewers. This could happen if the organizations became convinced that the guidelines were being used inappropriately to limit the use of Medicare services. It could also happen if there were strong divisions within the specialty community, or between one specialty group and another, about specific aspects of a protocol.[45] There is also a possibility that medical organizations could try to adjust protocols or criteria to meet their own perceived needs. In some cases, this could be entirely appropriate. If, for example, a specialty group believed, based on professional experience, that criteria adopted by PROs tended to be biased against a particular treatment or procedure, they might press to amend these criteria. It is possible, however, that the specialty organization itself could be biased toward the use of an expensive or complex procedure or approach to treatment that other physicians view more skeptically. An open, public discussion of the criteria should help to prevent these sorts of problems. It may also be useful to submit the protocols or criteria sets to an independent organization such as the Institute of Medicine for additional review.

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[43] The regional A/B working file centers will not have the supplemental materials such as physicians' explanatory notes and medical records sometimes needed to make medical review determinations. Carriers will retain these data.

[44] These issues are discussed in Chapter 12, on practice guidelines. Specialty societies' important role in defining global surgical services is discussed in Chapter 4.

A related issue, raised frequently by review organizations, is the danger that open discussion of review criteria could lead to "gaming" the system by physicians, that is, that physicians would learn how to submit information that would get their claims past the carrier or PRO screens. This is largely a technical problem, which can be addressed by periodically adjusting specific automated screen parameters and randomly reviewing cases not triggering screens, and so forth.[46] It could also be argued that the benefits of having good review criteria and using them to reinforce the appropriate practice of medicine outweigh the potential negative behavioral incentives.

Another approach to ensuring more input from the professional community into the design of review protocols and criteria would be to require that key medical specialty organizations be officially represented on PRO governing boards. Although some PROs have close ties to state medical societies, and some PRO executive boards include physicians with active ties to specialty societies, interaction between Medicare reviewers and specialty groups is now generally informal.

This approach could be implemented in several ways. One is to require that large multi-specialty or subspecialty organizations have designated seats on each PRO governing board. Another possibility is designating board seats for specific specialty groups, for example, "at least one surgeon each from two of the four highest volume Medicare surgical specialty groups in the state," "two physicians representing a subset of medical subspecialties providing high volumes of services to Medicare beneficiaries," or "five physicians representing different subspecialties representing a range of medical and surgical services provided to beneficiaries."

Formal representation of medical specialty groups on PRO governing boards could increase the acceptance of review methods by the physician community, and open up channels for greater involvement by the specialty groups in the development of review criteria.[47] HCFA currently requires that PRO boards include consumer representatives; it could be argued that specialty societies have expertise to contribute as well as a clear interest in maintaining high standards for PRO reviews, and should therefore be guaranteed representation as well.

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[45] In this case knowing about this division should be very useful to the PRO.

[46] As discussed earlier, specific screening parameters--as opposed to the criteria then used to judge appropriateness--need not be made public by carriers.

[47] Currently, less than half of all PROs report having specialty societies represented on their governing boards (U.S. General Accounting Office, November 1988).

These two approaches to increasing the involvement of the medical community in the development of review protocols and criteria are not mutually exclusive, and may be complementary. Greater involvement in the day to day operation of the PRO program could prove valuable to the medical specialty societies, and help them focus more clearly on the practical requirements of medical review protocols. Both approaches are, in fact, already being taken informally by some PROs and medical organizations. However, given the wide variation in the political environment and the organizational interests and capabilities of state and local medical organizations, there would need to be flexibility in the way reforms are implemented. Determining precisely how to define specialty representation could be difficult, and would have to be worked through the HCFA rule-making process.

Health Care Organizations. The effectiveness of Medicare's medical review will ultimately be determined by the program's ability to affect the behavior of physicians and other providers. To accomplish this, the program has to work actively with health care organizations--hospitals, nursing homes, ambulatory surgery centers, and so on. PROs and carriers also need to work closely with accreditation and licensure organizations.[48]

Medicare can provide support, such as data and methodological assistance, educational outreach, and financial and administrative resources to disseminate practice guidelines and enforce utilization and quality standards. The most effective locus of control, however, is at the point where health services are actually delivered. As discussed in Chapters 11 and 12, health care organizations, medical staffs, and medical education organizations need to be involved in the evaluation of practice guidelines and in the dissemination of improved methods of practice. They also need to work with PROs and carriers on the development of review objectives, as well as in the process of identifying problem practitioners and finding effective ways to correct inappropriate practice patterns.[49]

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[48] Problems of coordination between PROs and state medical licensing boards are discussed in two related reports prepared by the U.S. Department of Health and Human Services Inspector General (October 1988 and August 1988).

[49] PRO staff (including physicians) are required to meet with the medical and administrative staff of each hospital in its review area several times per year to inform them about general problems relating to unnecessary admissions, quality of care, and so forth.

Create a New Office or Agency Devoted Specifically to the Support of Research, Demonstrations, Evaluations and Technical Assistance for Medicare and Medicaid Peer Review Organization, Carrier and Intermediary Quality and Utilization Review Programs

Creating a special office devoted to developing utilization and quality review methods could provide a focal point that seems lacking in the current efforts of various HHS offices and some PROs. Most important, however, are evaluation and technical assistance functions. Currently, neither PROs nor carriers have a central, established place in HCFA to turn to for help in adopting, refining or learning to use the technologies and review criteria that are being developed in the private sector (and by their colleagues working for the Medicare program).[50]

Placing this office outside the direct operation environment would foster the research and evaluation process. Separating research and development from the PRO contract system would allow PROs and the medical community flexibility in experimenting with methods that could increase the effectiveness of utilization and quality review. PROs and research organizations could seek out interested medical groups (and vice versa) who had a strong interest in developing review methods, and propose timeframes and resource requirements that seem reasonable.

CONCLUSIONS AND SPECIFIC RECOMMENDATIONS

The chapter presents policy reforms that could encourage the development of a comprehensive quality and utilization review program for Part B services. Some of these reforms are currently underway, others could begin in the near term, and still others would require longer-term efforts.

The Commission recommends, first, that HCFA establish procedures requiring the involvement and cooperation of both PROs and carriers in

- design and assessment of screens affecting physician payments;
- development of physician profiling activities; and
- the investigation of physicians suspected of providing inappropriate or substandard care.

In addition, HCFA must assure that carrier and PRO utilization review objectives are complementary.

Second, HCFA, carriers and PROs together should develop proposals to define the future roles and operational responsibilities of PROs and carriers in the review of care provided by physicians in office settings. Specifically, the proposals should indicate

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[50] The Commission recommends substantial new federal support for the development and dissemination of practice guidelines. See Chapter 12.

- how PRO determinations of inappropriate services found in these reviews should be coordinated with carriers;
- how PRO activities could be coordinated with carriers and intermediaries, as they relate to the assessment of quality and utilization throughout episodes of illness and to intensified reviews of physicians suspected of providing inappropriate or substandard care; and
- how administrative oversight of medical peer review operations could be reformed so as to emphasize professional medical conduct and its effects on the practice of medical care rather than compliance with specific "objective" contract requirements.

Third, HCFA should increase its efforts to ensure that PROs and carriers consult with the appropriate medical or specialty organizations when developing or refining review criteria or protocols. The Commission considers the proposed rule published January 30, 1989 requiring solicitation of comments from the local medical community on new carrier and intermediary utilization review criteria to be an important step forward. The Commission also recommends that HCFA strongly encourage PROs and carriers to draw on the practice guidelines discussed in Chapter 12 as they become available.[51]

Fourth, the Commission recommends that HCFA designate one office devoted specifically to the support of research, demonstrations, evaluations, and technical assistance of quality and utilization review for Medicare and Medicaid peer review organizations, carriers, and intermediaries. The office should also serve as a repository for information about state-of-the art review methods which can be made available to all review organizations, and as a conduit for new information about practice guidelines that can be integrated into review criteria.

Finally, the Commission strongly believes that Medicare's review organizations must have stable and adequate funding to conduct medical review activities effectively. The President's budget for fiscal year 1990 would cut carrier funding for medical review by 19 percent. The Commission believes that such cuts would seriously threaten progress currently being made in Part B utilization review.

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CHAPTER 14

MEDICARE CLAIMS

The availability of accurate, complete and timely claims data is essential for the Medicare program to achieve its objectives. The method of submitting claims and the quality of claims data affect carrier operations, claims processing costs, and the timeliness and accuracy of payments to beneficiaries and physicians. Claims data are also the primary source of information on utilization and expenditures for program management and monitoring.

Considering the new initiatives recommended by the Commission, the quality and availability of claims data will be even more important. With the implementation of a resource-based fee schedule and the placement of a limit on balance billing, it will be important to monitor trends in utilization to ensure that access to Medicare services is not impaired (Chapter 10).

To administer the expenditure target program effectively, complete data on expenditures must be available (Chapter 11). Expenditure data must be available shortly after the close of a period to calculate annual updates of physicians' fees, based on actual versus targeted rates of increase in expenditures per enrollee. The availability of Part A and Part B Medicare data to support peer review and educational functions would also assist the medical profession in responding effectively to expenditure targets.

RECOMMENDATIONS

Providers should file Medicare claims for all services--both assigned and unassigned--with no charge to beneficiaries. Claims should be submitted within 90 days after the delivery of service.

HCFA should establish comprehensive requirements for carrier electronic claims capabilities and provide technical assistance to carriers.

Electronic claims should be exempted from requirements for minimum processing times.

The Congress should provide adequate and predictable funding for program administration.

This chapter provides background information on the Part B claims system, followed by a discussion of claims preparation and submission processes, electronic media claims (EMC), and the accessibility of Medicare Part A and B data.

BACKGROUND

The basic element of the Medicare data system is the claim submitted by the physician or beneficiary.[1] An assigned claim is prepared by the physician and is generally submitted on a HCFA-1500 health insurance claim form that includes patient identification information, diagnostic information, procedures performed, medical services and supplies provided, provider identification and charges.[2]

In general, an unassigned claim is prepared by the beneficiary with varying degrees of assistance from providers and submitted on a HCFA-1490s (patient's request for payment) claim form. The HCFA-1490s claim form contains only limited information, primarily concerning beneficiary eligibility under other public and private insurance or health plan programs and a brief description of the nature of the patient's illness or injury, but these claims are accompanied by itemized bills from providers.

Some unassigned claim forms are prepared by providers on behalf of beneficiaries and are submitted on the same form (HCFA-1500) used to submit claims that are assigned. A sizable proportion of unassigned claims are submitted by physicians. In a recent survey of 2,000 beneficiaries, conducted for the Commission by Mathematica Policy Research, over 80 percent of respondents indicated that their claims for physician services are usually submitted by the physician, even though only about 60 percent said they were usually treated on assignment.

HCFA is presently enhancing the Part B claims data to resolve two major limitations: the absence of a unique physician[3] identification system and coded diagnosis data.[4] Each Medicare carrier currently uses its own system of assigned numbers to identify physicians.[5] Under a new system, to be implemented in June 1989, carriers will continue to use their own local physician identification systems, but must cross reference local identifiers with unique physician identification numbers (UPINs) assigned by HCFA.

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[1] In fiscal year 1988, nearly 377 million Part B claims were processed (U.S. DHHS, HCFA, FY1988).

[2] Sometimes physicians use a "superbill" instead of a HCFA-1500 claim form. A superbill includes all of the data elements on the HCFA-1500 form, but the format of the superbill is usually tailored to the recording of information specific to a particular specialty. Superbills are more costly for carriers to process than HCFA-1500 claims because they do not adhere to a uniform format.

[3] Section 1861(r) of the Social Security Act defines physicians as chiropractors and doctors of medicine, osteopathy, dental surgery, dental medicine, podiatric medicine and optometry.

[4] The implementation of a unique physician identification system and the requirement that diagnosis codes be furnished on claims for physician services were mandated by Congress in the Medicare Catastrophic Coverage Act of 1988 (see Public Law 100-360) and the Consolidated Omnibus Budget Reconciliation Act of 1985 (Public Law 99-272, Section 9202(g)), respectively.

[5] Some carriers assign separate identification numbers to the same physician providing services in more than one locality--office or practice--without the capability of cross referencing the identification numbers and related physician data. Other carriers maintain a single identification number or cross referenced identification numbers for each physician practicing within the carrier's geographic area. Some carriers also assign a single identification number to physicians practicing as a group.

Also effective in mid-1989 will be a requirement that all claims requesting payment for physician services include a diagnosis code or codes.[6] At present, Part B claims generally contain only a brief narrative description of the patient's diagnosis or nature of illness. Coded diagnoses are preferable to narrative descriptions, assuming that they are assigned properly, because they are far less ambiguous and frequently more detailed. HCFA and others should promote accurate reporting of diagnoses and assess quality of this data on a periodic basis.

PREPARATION AND SUBMISSION OF CLAIMS

There are two problems with the current process of preparing and submitting claims: the preparation of claims by beneficiaries, and the untimely submission of claims. It is difficult for beneficiaries to prepare claims. If their claims are inaccurate or imcomplete, carrier processing costs are increased. Because there is no requirement to submit claims within a reasonable period of time after a service is provided, data on expenditures are often incomplete for two years or more after the close of a period.

Preparation by Beneficiaries

The preparation of claims by beneficiaries poses problems for beneficiaries and for carriers. About one-fifth of Part B claims are unassigned, leaving the responsibility for claims preparation with the beneficiaries.

Because of the burden of submitting a claim, some beneficiaries do not submit the claim and thus do not receive the benefits to which they are entitled. In the Commission's beneficiary survey, about 9 percent of beneficiaries indicated that they did not submit a claim for what they believed to be a Medicare covered service. We estimate that these claims would increase Medicare payments by $100 to $150 million per year.[7] Requiring physicians to submit all claims would increase outlays, but the Commission regards this cost as necessary to assure that beneficiaries receive payments to which they are entitled.[8]

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[6] The classification system to be used in coding diagnoses is the International Classification of Diseases, Clinical Modification (ICD-9-CM) (Commission on Professional and Hospital Activities, 1986).

[7] Beneficiaries who did not file a claim for services that they believed would be covered by Medicare were asked to indicate the charges for such services. For about one-third of these beneficiaries total charges were less than the $75 deductible. Another one-third of the beneficiaries could not recall the charges for services. The average charge was $315 for the remaining one-third of beneficiaries who indicated they had charges that exceeded the deductible. Based on these findings (assuming the current charge reduction rate and rates of denials on submitted claims), it is estimated that the submission of claims for all covered services would increase program expenditures by $100 to $150 million per year, depending upon whether it is assumed that those beneficiaries unable to recall service charges did not meet the deductible or, alternatively, met the deductible and had an average charge of $315.

Claims submitted by beneficiaries are far more costly for carriers to process than those submitted by physicians. In beneficiary claims, most of the information needed by carriers comes from the physician's itemized bill, not the claim form. The carrier must search the physician's itemized bill for the information required for processing and enter it into the claims processing system.

Filing of claims by beneficiaries also delays the availability of data on expenditures. Unlike physicians, beneficiaries do not file claims as a routine business office procedure, and may postpone filing claims until they are certain their expenditures exceed the deductible.[9] Claims prepared by beneficiaries are more likely to contain incomplete or inaccurate data, thus necessitating special processing.

If providers were required to prepare and submit all claims directly to the carrier, the burden on the beneficiary would be minimized and accurate and timely claims processing would be facilitated.[10]

Timeliness of Claims Submission

A second issue concerning the submission of claims is the filing time requirement. Present law requires that claims be filed no later than the end of the calendar year following the year in which the service was provided; services provided in the last three months of a year are treated as if they were provided in the subsequent year. Thus, claims can be filed as much as 27 months after the service is provided.

It is difficult to assess the extent to which providers or beneficiaries delay filing claims because HCFA Part B claims datasets do not include the date a claim was filed. But available information on the time between the date a service was provided and the date the claim was paid indicates that about 15 percent of

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[8] Congress considered including a provision in the Omnibus Budget Reconciliation Act of 1987 to require that all claims be submitted by physicians, but the provision was eliminated due to fears that Part B expenditures might increase substantially.

[9] To the extent that beneficiaries fail to file claims for covered services, Medicare capitation payments to HMOs and CMPs with risk contracts will be biased downward. Capitation payments are intended to approximate 95 percent of the average cost of providing covered services to a Medicare beneficiary in the fee-for-service sector. If claims are not filed for covered services, the capitation payment is understated.

[10] Regardless of whether a claim is submitted by the beneficiary or the physician, or is assigned or unassigned, carriers are required to forward to the beneficiary an explanation of Medicare benefits (EOMB) form. The EOMB provides a record of the Part B services rendered, physician charges and Medicare payments, and the status of the Part B deductible. The EOMB asks beneficiaries to notify the carrier if they believe Medicare has paid for a service they did not receive, or if they have questions about the amounts paid by Medicare.

Medicare payments are issued more than three months after the service was provided, and about 5 percent greater than five months.[11]

The Commission recommends that claims be required to be filed within 90 days after a service is provided. Late claims would be subject to modest monetary penalties.

ELECTRONIC MEDIA CLAIMS

There has been slow but steady growth in EMC usage since 1980 when HCFA standards were established and EMC usage encouraged (U.S. DHHS, OIG, 1984).[12] The percent of total claims transmitted to carriers electronically in fiscal year 1988 was 34.1 percent, compared to 30.9 percent for fiscal year 1987 (U.S. DHHS, HCFA, September 1988). Several carriers are receiving a high proportion of their claims electronically, while others are receiving relatively few.[13] EMC usage for claims for physicians' services is probably lower than the overall percentage, since claims submitted by independent laboratories and other suppliers are believed to account for a disproportionate share of EMC claims.

As would be expected, the proportion of EMC is higher for assigned claims than for unassigned claims. In fiscal year 1988, approximately 39 percent of assigned claims were received electronically as compared with nearly 20 percent of unassigned claims. But even in the unassigned claims category, the potential for increased growth of EMC is significant. In September 1988, five carriers received more than 40 percent of their volume of unassigned claims submitted by providers via EMC.

There are substantial benefits to be derived from increased EMC usage, but there are also numerous factors that contribute to slow rates of EMC adoption. Following are discussions of the benefits associated with EMC, factors that impede EMC growth, and an assessment of the potential for increased EMC usage.

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[11] This was estimated using a 5 percent sample of providers for each carrier from the 1986 BMAD III file. Non-physician services such as equipment, supplies and ambulance services were excluded. These data are believed to underestimate the impact of slow claims filing, because BMAD files include only claims for services in a calendar year that were processed by carriers by March 31st of the following year. It is also not possible from BMAD files to identify claims that have unusually long processing times because special processing is required to resolve discrepancies or obtain missing information.

[12] Methods of transmitting claims electronically include magnetic tape, floppy disk and telecommunications.

[13] For fiscal year 1988, the percent of claims received via electronic media ranged from a high of nearly 63 percent for Alabama Blue Shield to less than 12 percent for Alaska-Aetna, Iowa Blue Shield-Nebraska, Massachusetts Blue Shield-Maine, and Puerto Rico Blue Shield. Sixty-seven percent of the carriers received less than 35.6 percent of claims electronically (the average for all carriers) and 33 percent received more.

EMC Benefits

EMC offers many advantages over paper claims, including lower claims processing costs, improved accuracy and completeness of data, timely availability of data, and better communication between carriers and physicians.

HCFA has estimated that processing a Part B claim electronically saves the carrier an average of $0.35 in front-end processing costs per claim. In fiscal year 1988, Medicare carriers received 378.3 million claims (U.S. DHHS, HCFA, September 1988). Therefore, a one point increase in the percentage of total claims submitted electronically would result in an annual savings of about $1.32 million in processing costs. In other words, if EMC volume increased from 34 to 50 percent of total claims, the annual savings would be about $21 million per year.[14]

Another benefit of EMC is increased accuracy and completeness of data submitted on claims. With appropriate software some of the edits currently performed by carriers can be performed by providers as they enter data. Thus, errors which otherwise would result in rejection or suspension of the claim by the carrier (and increased processing costs) can be avoided.

EMC can also provide the Medicare program with more timely data. EMC reduces the time between service provision and claims submission by eliminating the time required to send the claim by mail. It also shortens carrier processing time by eliminating some of the labor-intensive activities involved in processing paper claims. A transitional problem associated with improved timeliness is a one-time shift in Medicare outlays between fiscal years.

Another potential advantage of EMC systems is improved communication between carriers and physicians. In a 1987 survey of physicians conducted by the American Society of Internal Medicine (ASIM), 76 percent reported difficulty contacting carriers by telephone (ASIM, 1987). For physicians and suppliers with a telecommunications linkage, many functions could be performed interactively, including

- verification of status of assigned claims,
- notification of claim denial,
- requests for and receipt of information for the resolution of suspended claims,
- transmission of periodic reconciliation reports to providers,
- provision of "bulletin board" services to transmit news or educational information, as well as notices of changes in regulations, guidelines or procedures, and

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[14] As discussed below, there are also carrier costs associated with use of EMC, mainly capital investment costs.

- provision of electronic mail services to facilitate communication between physicians, hospitals, suppliers, billing agencies, PROs and others.

Were Medicare to promote greater use of EMC, there would probably also be significant cost savings to the private health insurance sector and state Medicaid programs. Once the initial investment in computer hardware, software and staff training was made, physicians would be more likely to submit Medicaid and private insurance claims, as well as Medicare claims electronically.

Current Barriers To EMC Usage

Although EMC offers significant advantages over paper claims, various factors impede EMC growth. Barriers to increased use of EMC may be classified into three categories: legislative issues, administrative and operational issues, and provider acceptance.

Legislative Barriers. Legislative impediments include inadequate appropriations for carrier operations and the imposition of "floors" on payment claims processing times.

Inadequate support for carrier operations has probably contributed to slow growth in EMC.[15] Tight budgetary constraints have made it very difficult for carriers to make the necessary investments in computer hardware and software, staff training and provider education. Although EMC has the potential to produce significant savings in carrier expenditures within a relatively short period of time, an initial investment is required to establish comprehensive EMC capabilities at the carrier level and to assist providers in converting from paper to electronic media.

EMC growth has also been slow because provider incentives to convert to EMC have been dampened by legislative provisions for the deferral of Part B payments. Viewed as a cost-containment measure, the Omnibus Budget Reconciliation Act of 1987 mandates that starting in fiscal year 1989, no payment is to be issued by carriers until at least 14 days have elapsed from receipt of the claim. Previously, prompter payment--in less than 14 days--was one incentive to submit claims electronically.

Administrative and Operational Issues. The absence of specific requirements for comprehensive EMC capabilities at the carrier level, the concern about potentially inadequate procedural requirements to insure system integrity, the lack of uniform technical requirements pertaining to EMC systems, and the cost and complexity of modifying EMC systems also contribute to the slow adoption of EMC usage.

Carriers differ greatly in their EMC systems technology and capability, owing in part to HCFA's failure to establish requirements for the development of comprehensive

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[15] In its 1987 report the Commission joined others in warning Congress that very tight funding for carrier operations is counterproductive. Increased funding was provided to carriers in 1988, but reductions have been made in the projected 1989 carrier budgets.

EMC capabilities.[16] HCFA has not required carriers to establish two-way communications capability, so some carriers are capable of receiving claims, but cannot respond electronically.[17]

Some believe there are inadequate procedural requirements to safeguard the integrity of EMC systems.[18] HCFA has established some guidelines pertaining to on-site verification visits at the time of contract initiation and the execution of written EMC agreements between carriers and providers/suppliers. Also, as is the case with paper claims, beneficiaries are notified in writing (through the EOMB form) by the carrier when claims are processed; this notification is intended to verify that services billed for by providers were actually received. But stronger regulations and direction to carriers from HCFA would help to prevent and detect any fraud or abuse in EMC claims submission.

With regard to EMC technical requirements, HCFA has established formatting specifications for the electronic transmission of data by magnetic tape, but not for telecommunications purposes.[19] HCFA has also not endorsed the use of particular telecommunications protocols for data transmission.[20]

The absence of well defined standards frequently leads to redundancy, confusion and increased cost, especially on the part of providers.[21] Software products available for data entry and communications use different protocols; some are consistent with carrier expectations and others are not. In addition, physicians submitting claims to more than one carrier or to payers other than Medicare may have to adhere to multiple protocols.

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[16] Some carriers have been successful in developing comprehensive EMC systems, while others have only limited capabilities (U.S. DHHS, HCFA, Office of the Inspector General, 1985). Some carriers with comprehensive systems have benefited from having EMC capabilities as a part of their private insurance claims processing systems.

[17] Carriers are required to have the capability to receive claims by magnetic tape. They are also required to have telecommunications capability unless they can demonstrate to the regional office that it is not cost-effective. Virtually all carriers have some telecommunications capability. For those who do not have two-way communications capability, verbal or written communication is required between the provider and carrier to insure the success of the transmission, and carriers are unable to use the telecommunications system for other purposes such as the electronic transmission of remittance notices.

[18] In a 1985 report prepared by the Office of the Inspector General, three major areas of vulnerability in carrier systems were identified--agreements and certification, controls in EMC systems, and post-payment audit practices.

[19] Carriers are responsible for specifying the physical and logical data formats to be used for data input and output over telecommunications lines (U.S. DHHS, HCFA, Carriers Manual, undated).

[20] Carriers are required to use "Prudent Buyer" principles when deciding whether to support a specific telecommunications protocol and to consult with the regional office staff before committing resources or denying requests from providers or suppliers (U.S. DHHS, HCFA Carrier Manuals, undated).

[21] One advantage (at least in the short run) of allowing carriers a great deal of discretion in selecting claims formatting specifications and communications protocols is that carriers are free to conduct their Medicare business in a fashion that is compatible with their private claims processing business. Medicare benefits from "piggybacking" on existing carrier telecommunications capabilities.

If HCFA specified a protocol for claims formatting to be used in the Medicare and Medicaid programs, many private payers would probably follow suit. Alternatively, HCFA might choose to work with the major private payers to reach a consensus regarding the specification of a uniform third-party protocol for claims formats.[22]

Another operational barrier that impedes EMC growth is the cost and complexity of making changes in EMC systems. With EMC, it is generally more expensive to make changes in the content of the claims dataset than is the case with paper forms. For example, the addition of a new data element to the claim form would necessitate software changes in both physician office systems and carrier claims processing systems. It is usually easier for a physician office to adapt to a new paper claim form than to comply with new requirements for electronic claims formatting. Less frequent changes in claims formats could minimize the cost of modifying software for both carriers and providers.

Provider Acceptance. Many physicians already submit claims electronically and a sizable proportion maintain their office billing records electronically. In a recent Commission survey of about 2,800 physicians, about one out of four indicated that they submit claims through direct electronic linkage. Nearly one-half maintain their office billing records electronically.

Capital investment costs are not a major barrier to EMC usage by physicians. Conversion from paper to electronic media claims requires an initial capital investment on the part of providers, but for providers with moderate to heavy claims volumes, the benefits of EMC significantly outweigh the costs. Even for a small to medium size office practice, the cost of converting to electronic transmission is not formidable. Practices that already own a personal computer would require only a modem and communications and data entry software to convert to EMC, but some staff training would also be necessary. Alternatively, a practice may choose to purchase or lease a medical office management system, at a cost of $20,000 to $35,000. In addition to electronic billing, such systems provide other integrated services such as patient registration and payroll. Providers can also contract with a billing agency to prepare and submit claims electronically on their behalf.

Although the benefits of converting to EMC are probably greater for physicians with heavy claims volume, the 1987 survey of internists conducted by the ASIM found that claims volume is not a good predictor of the likelihood of submitting claims electronically (ASIM, 1987). Only 14 percent of physicians with high Medicare caseloads submitted their claims electronically, as compared with about 17 to 18 percent of physicians with medium and low caseloads. Familiarity with computers may be a more important factor; 20 percent of physicians under age 55 submitted their claims electronically, compared with only 12 percent of those age 55 and older.

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[22] The Uniform Claims Form Task Force, cosponsored by HCFA and the American Medical Association, has discussed the need for format specifications for telecommunications claims submission, but thus far has not pursued this task.

Probably one of the most serious impediments to EMC adoption by physicians is the lack of EMC capability across all payers, making complete conversion to EMC impossible. Among those payers with EMC capability, the lack of consistent specifications further impedes EMC adoption by physicians.

Policies To Increase EMC Usage

There is the potential for far greater use of EMC. In the short run, HCFA should provide greater direction and technical assistance to carriers to enhance EMC capabilities, including requiring comprehensive EMC capability of carriers and emphasizing EMC capability in evaluating carrier contract performance. Further, Congress should give incentives to providers to convert to EMC by exempting EMC claims from the current legislative provisions that call for the deferral of Part B payments. Carriers should facilitate provider adoption of EMC by evaluating and disseminating information regarding alternative software and hardware products and by providing certain benefits to EMC providers such as electronic verification of claim status, periodic reconciliation reports, and prompt payment to the extent allowed by law. Over the long run, a requirement should be established that all claims be submitted electronically.

During the coming year, a high priority should be placed on developing a comprehensive plan for conversion to EMC. Charting a more specific and ambitious course for the conversion from paper claims to EMC is hampered by a lack of information and consensus regarding (1) desired EMC capabilities at the carrier level; (2) necessary capital investment required to upgrade carrier systems; and (3) degree of standardization of EMC processes.

To encourage provider adoption of EMC, Congress should exempt EMC claims from the current legislative provisions that call for the deferral of Part B payments. For claims submitted electronically, carriers would be required to make payment as promptly as possible, while payment would not be made on paper claims until the required number of days had elapsed from receipt of the claim as specified by current law.

Congress should also require that all Part B claims be submitted electronically by some future date. Such a requirement would have to be phased-in slowly, starting with providers submitting a large volume of claims and, only over a period of several years, applying to lower volume providers.[23] HCFA should develop a timetable for complete conversion to EMC during the coming year.

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[23] In November 1987, the Medical Services Plan of British Columbia, Canada announced that as of December 31, 1988 paper claims would no longer be accepted. All claims had to be submitted electronically (British Columbia Ministry of Health, 1988). The Medical Services Plan is giving the communications software to providers who plan to use a personal computer in their office for data entry and to transport the data over telephone lines to the plan's mainframe computer. Providers are responsible for purchasing the necessary personal computer and data entry software. Most providers who do not choose to purchase a personal computer will contract with a service bureau to prepare and submit claims on their behalf. Of course, the success of this particular approach will not be known for some time.

THE ACCESSIBILITY AND INTEGRATION OF PARTS A AND B DATA

Integrated Part A and B data will be needed for several reasons: to monitor access, to monitor actual expenditures and calculate updates to physicians' fees, to identify changes in medical practice patterns and in the site of care, and to attribute changes in the total cost of care to differences in the volume, mix and cost of services. At present, PROs, carriers and intermediaries generally do not work with combined Part A and B datasets.

Many of the problems encountered in obtaining integrated Part A and B data in a timely fashion are expected to be resolved by the end of 1990. HCFA is currently modifying the claims data system to establish "common working files," an integrated set of beneficiary files that contain key information from both Medicare Part A and Part B.

HCFA is also undertaking a much broader "project to redesign information systems management" (PRISM), which builds upon the common working file. PRISM will redesign and install an integrated on-line Medicare and Medicaid administrative data system to be accessible to HCFA central and regional offices, carriers, intermediaries, and PROs. PRISM is expected to be completed in 1990.

With the implementation of the common working files and PRISM, Part A and B beneficiary eligibility and claims data will be maintained in an on-line environment at the regional level. Claims data will flow from intermediaries and carriers to ten to 12 regional "host" carriers who will be responsible for maintaining complete claims records for beneficiaries assigned to their area. The regional files of the "host" carriers will be transmitted to HCFA Central Office periodically to form a complete beneficiary file. This data will be available for administrative and policy analysis purposes at the national level. HCFA has also recently announced its intention to develop a data resource center to make combined Part A and B data available to private researchers.[24]

The Commission strongly supports HCFA's efforts to improve the Medicare data system, and urges HCFA to assign a very high priority to the combined working files and PRISM projects. Full implementation of certain proposed changes in the physician payment system, most notably expenditure targets, will not be possible without readily accessible and integrated data on Part A and B service use.

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CHAPTER 15

RISK-SHARING ARRANGEMENTS IN PREPAID HEALTH PLANS

Since 1985, the Medicare program has contracted with health maintenance organizations (HMOs) and competitive medical plans (CMPs) to provide comprehensive health services to enrolled beneficiaries for a predetermined capitation payment.[1] The prepayment mechanism transfers risk from the Medicare program to prepaid health plans. Prepaid plans work within a fixed budget, with Medicare adjusting capitation payments annually to account for differences in enrollee characteristics (e.g., age, institutional status and Medicaid status) in order to reflect expected differences in cost for various classes of beneficiaries.

With the present arrangement there is concern that some prepaid plans have compensated for ineffective organization by relying on physicians to control costs through financial incentives. Most prepaid plans have transferred at least some of the financial risk for enrollee health care to physicians. But there is a fear that if financial incentives are too great and if risk is transferred to the individual physician, the result will be an underuse of services.

This concern led Congress, in 1986, to prohibit hospitals and HMOs from making payments to physicians as inducements to reduce or limit services to Medicare beneficiaries.[2] The current law would profoundly affect HMOs by outlawing virtually all risk-sharing arrangements with physicians. But Congress will most likely narrow the scope of the prohibition prior to its April 1990 implementation date.

This chapter assesses potential policies to insure that risk-sharing arrangements between prepaid plans and physicians do not lead to reduced access or inappropriate care for beneficiaries. It begins with background on physician risk-sharing arrangements and alternative approaches to physician compensation, and provides a rationale for proceeding cautiously with restrictions on these arrangements. It then focuses on two potential policy directions for Medicare: legal prohibitions on the use of financial incentives, and increased monitoring of quality and access. The concluding section discusses the Commission's recommendations.

RECOMMENDATIONS

HCFA should require prepaid health plans to limit the total risk assumed by individual physicians or small groups through some form of reinsurance or "stop loss" provision, and it should require them to rely primarily on incentives to groups of physicians rather than to individual physicians.

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[1] Throughout this chapter the term HMO will be used to refer to all HMOs and CMPs with Medicare risk contracts, unless otherwise indicated.

[2] Omnibus Budget Reconciliation Act of 1986 (P.L. 99-509).

Health plans should also disclose to both physicians and enrollees appropriate information on risk-sharing arrangements.

HCFA should continue to strengthen its monitoring and review processes applicable to prepaid plans and should conduct periodic surveys of both current and former enrollees to assess both access to care and beneficiary satisfaction.

HCFA and others should conduct additional research to identify the effects of patient characteristics on the use of services and to assess the impact of risk-sharing arrangements on physician behavior and the accessibility and quality of care.

BACKGROUND

With increased emphasis on cost containment and the corresponding development of prepaid plans, the distinction between health care financing (or insurance) and health care delivery has become less clear. More and more, the risks for the costs of care are being shared among payers, providers (physicians, hospitals, prepaid plans) and beneficiaries. The rationale for distributing risk among these groups is that each group influences the efficiency and outcomes of patient care. All play a part in determining total health care costs, and no one party is able to shoulder the entire risk.

The objective of risk-sharing arrangements is to encourage efficient behavior and cooperation on the part of payers, providers, and beneficiaries. Efforts are underway in the capitated sector to design well-balanced risk-sharing arrangements that hold each party accountable for only those aspects of health care costs under their control. These efforts are hampered by the absence of information on the effects of risk-sharing on provider behavior, by limited knowledge of patient characteristics that lead to differences in future costs, by rudimentary models for adjusting payments to account for such differences, and by limited methods of measuring and evaluating physician performance.

The lack of knowledge about physician compensation arrangements results in part from the HMO industry's state of rapid growth and flux. Over 63 percent of HMOs are less than five years old, and these young HMOs represent an extremely heterogeneous group (InterStudy, 1988a). HMO plans differ greatly in ownership, governance, management structure, motivation, style of business operations, practice setting, contractual arrangements with physicians and hospitals, restrictions on the selection of providers, mix of services, reliance on experience versus community rating, financial viability, and provider compensation arrangements.

Without information on the appropriate allocation of risk, there is concern regarding the potential effects of risk-sharing on patient care. Unlike fee-for-service, capitation provides strong incentives to control expenditures. Most health plans try to achieve some degree of control through management decisions on the use of physicians, nurses, and technicians, on contracts with specialists and hospitals, on appointment scheduling, on the use of ancillary services, and similar administrative arrangements. Health plans also use physician compensation packages that incorporate some assumption of financial risk by physicians.

Although risk-sharing is intended to encourage physicians to prescribe services more prudently, it may lead to inappropriate care, particularly underservice. The assumption by plans or physicians of excessive risk may result in financial problems and corresponding reductions in patient services. In particular, arrangements that place a primary care physician at risk for services other than those he provides directly may reduce access to specialists and hospitals as the primary care "gatekeeper" seeks to reduce outside referrals, thus controlling claims on the risk pool.

ALTERNATIVE RISK-SHARING ARRANGEMENTS

HMOs may develop risk-sharing arrangements with both primary care physicians and specialists. But arrangements with primary care physicians who control access to the services of specialists and hospitals are of particular concern. The following section discusses risk-sharing arrangements for primary care physicians, the potential for underutilization of services, and methods of limiting financial risk.

Types of Risk-Sharing Arrangements

A compensation package for a primary care physician in a prepaid plan may consist of as many as three components: a basic compensation method, additional payments (a withhold or bonus), and risk delimiters (for example, a stop-loss provision). The incentives of additional payments and risk delimiters frequently serve to offset incentives for under- or over-utilization associated with the basic payment mechanism. Compensation may also be tied to individual physician or group performance or both.

Basic Compensation Methods. There are three basic compensation methods for primary care physicians: fee-for-service, salary, and capitation. In a recent survey of all HMOs in operation in early 1986, it was found that about 46 percent use capitation, 39 percent fee-for-service, and 15 percent salary (Hillman, 1987).[3] In general, fee-for-service arrangements encourage overutilization. Physicians on salary have relatively neutral incentives, while capitation may encourage underutilization.

Under capitation, an individual physician or group receives a predetermined, fixed payment for each enrollee to cover the costs of certain services for a specified period.[4] Narrowly defined capitation payments cover only primary care services, while broadly defined capitation payments also cover specialty care, and sometimes hospital care.[5] If the capitation payment covers only the services provided by the primary care physician, there is an incentive for the primary care physician to rely on specialists and hospitals while minimizing primary care services. In other words, he has an incentive to substitute those services outside the boundaries of the capitation payment for those inside. If the capitation payment includes specialty care and/or hospital care, the primary care physician has an incentive to minimize referrals to specialists and hospitalizations as well as their own services.

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[3] These three basic compensation methods are found in each of the three major types of HMOs, although in varying proportions (Hillman, 1987). Of the staff model HMOs in the study, 79 percent use salary, 10 percent fee-for-service, and 10 percent capitation. Of the group models, 39 percent use salary, 26 percent fee-for-service, and 35 percent capitation. Independent practice associations (IPAs) are most likely to use fee-for-service (53 percent) or capitation (43 percent), rather than salary (4 percent).

Withholds and Bonuses. Withholds and bonuses allow the HMO to establish a reserve to cover the costs of patient care that exceed the budget, and to share with physicians excess reserve funds remaining at the end of a period. Approximately two-thirds of HMOs use some form of withhold for primary care physicians.[6] Withholds are an explicit risk-sharing mechanism because physicians expect or are contractually entitled to receive unused funds. With bonuses, the distribution is usually negotiated at the end of the year. Both withholds and bonuses may be distributed to physicians based on individual or group performance or both.[7]

If withhold payments are excessive, underutilization of services may result. But for the vast majority of plans, withholds do not exceed 30 percent of payments and most plans withhold no more than 20 percent (Hillman, 1987). When used with fee-for-service payment, withholds usually attempt to balance the inclination of fee-for-service toward excess utilization. When capitation payments cover only primary care services, withholds for specialty or hospital care are used to balance the incentives for primary care physicians to substitute services outside the boundaries of the capitation payment (for example, specialty and hospital care) for those inside (usually primary care).

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[4] In a survey of plans belonging to either the Group Health Association of America or the Blue Cross and Blue Shield Association, it was found that 75 percent of respondents use some form of capitation for primary care physicians, and that of these plans about 25 percent capitate individual physicians, 32 percent capitate groups of primary care physicians, and the remaining 43 percent used some combination of individual and group level capitation (Gold and Reeves, 1987).

[5] One survey has found that about 47 percent of individual physician capitation arrangements cover ancillary services while only 22 percent cover specialty referrals and nine percent cover inpatient services (Group Health Association of America, 1988b). Of the group level capitation arrangements, 73 percent cover ancillary services, 76 percent specialty referrals and 32 percent inpatient services. Of the mixed group and individual capitation arrangements, 74 percent cover ancillary services, 67 percent specialty referrals and 19 percent inpatient services.

[6] Withholds are used by 82 percent of fee-for-service plans, 67 percent with capitation, and 21 percent with salaried arrangements (Hillman, 1987). Withholds are used by 3 percent of staff model plans, 45 percent of group models, and 83 percent of IPAs.

[7] In a survey of 215 federally qualified HMOs and CMPs, it was found that over two-thirds of plans distribute bonuses and withholds on the basis of aggregate performance of either the group or the plan (ICF, 1988). IPAs account for the majority of individually-based arrangements.

Bonuses, generally provided in addition to salaries, link performance and compensation. Bonuses are frequently tied to patient satisfaction and productivity, in addition to financial indicators.

Risk Delimiters. A risk delimiter is a form of reinsurance typically provided by the HMO in its compensation package. But delimiters may also be purchased by a physician or group from a private insurance company.

A risk delimiter safeguards a physician or group against extremely high costs associated with either an individual patient (an "outlier") or a group of patients. When delimiters are applied at the individual patient level, a physician or group is not held responsible for all or some of the costs of care associated with high-cost patients. A risk delimiter may also be applied to total costs for HMO patients. Under this arrangement, the HMO rather than the individual physician or group is responsible for total patient costs that exceed some specified level. The majority of plans protect primary care physicians from risk for the heavy use of services by high-cost or "outlier" patients (Hillman, 1987).

Risk delimiters are most frequently used with capitation because capitated arrangements generally transfer greater amounts of risk to physicians than do fee-for-service or salaried arrangements. But risk delimiters may also be used in conjunction with withhold pools.

Common Compensation Packages. Although there are numerous compensation arrangements in HMOs, there are some common patterns. When fee-for-service is the basic compensation method for primary care physicians, a portion of each fee is usually withheld to cover the costs of specialty or hospital care that exceed budget. There frequently is a stop-loss provision for high-cost cases. When salary is the basic compensation method, bonuses are often awarded based on productivity or other measures of performance. When primary care physicians receive capitation payments, the capitation payment typically covers the services provided directly by the primary care physician. Some portion of the capitation payment is usually withheld to cover the costs of specialty or hospital care in excess of the budget; and there is frequently a stop-loss provision.

Group- and Individual-Level Compensation. Another characteristic that influences both the degree of risk and incentives of primary care physicians is the size of the physician group. As noted above, risk-sharing arrangements may be established between an HMO and an individual or group of physicians, and in either case, the bonus or withhold may be based on the performance of individual physicians or a group.

As the size of the panel of patients covered by a compensation arrangement increases, the likelihood of a physician or group experiencing large financial losses decreases.[8] Statistical theory tells us that a physician or group's actual average cost per enrollee in any given period can vary significantly from the average cost per enrollee for the prepaid plan as a whole because of chance alone (Stuart and Yesalis, 1988). As the size of the panel increases, random fluctuations in patient costs tend to offset each other, so there is less variability in average enrollee cost from one period to another.[9]

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[8] It is generally not possible for a physician or group to experience very large gains under a risk-sharing arrangement. For example, the largest possible gain under a broad capitation arrangement would occur if no services were provided to beneficiaries in the physician or group's practice. The potential gain under these circumstances is not of the same magnitude as the potential loss associated with several of the beneficiaries in the panel experiencing catastrophic illnesses.

The size of the panel depends upon both the number of physicians and the proportion of each physician's practice devoted to HMO enrollees. If an individual physician's entire practice consists of HMO enrollees, the panel for this practice may be greater than that of a three member physician group for which HMO enrollees constitute only one-fifth of each physician's practice.

Group-level arrangements may also promote more effective peer review. As discussed below, financial incentives based on group performance encourage physicians to seek efficiencies in their colleagues' practices as well as their own.

Potential For Inappropriate Utilization

Concern about the impact of financial incentives on patient care is greatest when capitation is the basic method of payment. This is particularly true when the capitation payments cover a broad range of services and are made to individual physicians or small groups. The degree of physician risk is usually substantially greater under capitation than fee-for-service or salary.[10] But there is also much variation in risk across capitation arrangements, with some transferring only risk for primary care services, and others transferring a substantial amount of risk for specialty and hospital care.

Concerns about capitation are also greater because capitation at the level of individual physicians is most commonly used by independent practice associations (IPAs).[11] IPA's often lack formal and informal peer review mechanisms to guard against inappropriate utilization.[12] IPAs are generally more decentralized than other HMOs and may have numerous contracts with individual physicians who care for HMO patients within private practice settings. By working with private practice physicians, IPAs enable beneficiaries to join an HMO without severing established ties with a physician. But quality assurance programs of IPAs may be less effective than in other HMOs because IPAs incorporate divergent practices and medical record systems.

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[9] A smaller patient panel exhibits greater variability in the average cost per enrollee than a larger patient panel. For example, this increased variability means that a provider with a panel of 50 enrollees is more likely to experience large losses in any given period than a provider with a panel of 200 enrollees. For a discussion and illustration of this concept, see Stuart and Yesalis, 1988.

[10] Under risk-sharing arrangements using salary or fee-for-service as the basic method of payment, the total risk assumed by a physician or group is limited to the proportion of compensation withheld, and for about 98 percent of plans withholds do not exceed 30 percent. These types of arrangements do not carry the risk of financial insolvency or major medical practice losses inherent in broadly defined capitation payments.

[11] In a survey of 173 member plans of the Group Health Association of America and the Blue Cross and Blue Shield Association, it was found that 44 percent of IPAs make capitation payments to individual physicians as compared with 9 percent of mixed models, 5 percent of network models, 5 percent of staff models, and 0 percent of group models (Group Health Association of America, 1988b). More Medicare enrollees are in IPAs (45 percent) than in any other model, and IPAs account for about 58 percent of risk-based contracts (Office of Prepaid Health Care, 1989). IPAs are also the most rapidly growing segment of the HMO market–IPAs constitute 86 percent of HMOs that are less than three years old (InterStudy, 1988a).

Methods of Limiting Risk in Various Compensation Arrangements

Two concerns about risk-sharing arrangements are the assumption of excessive financial risk and its effect on clinical decisions. Under arrangements that involve significant physician risk such as capitation, medical practices could experience large financial losses due to random fluctuations in patient requirements. If the medical practice is unprepared or unwilling to absorb such a loss, financial insolvency or underservice of beneficiaries can result. Strong financial incentives may also tempt physicians to provide inappropriate medical care in return for modest financial gains.

Excessive Financial Risk. Capitation is a basic method of payment for physicians that transfers financial risk from an HMO to an individual or group of physicians. The capitation payment is not expected to cover the costs of care for each and every patient. Nor are total capitation payments expected to cover the costs of care for a panel of patients in each and every time period. The term risk means that there is some probability that patient costs may exceed payments.

Two factors that contribute to the degree of risk in a capitation arrangement are the size of the patient panel and "selection bias." As noted above, the smaller the panel, the greater the random fluctuations in patient costs. When the characteristics of a physician's or group's patient panel differ systematically from those of the population from whose experience capitation rates were set, "selection bias" has occurred. As a result capitation payments to the physician or group may be too low or too high to cover the expected costs of patient care (Stuart and Yesalis, 1988).

Techniques for reducing risk include using group capitation arrangements, adjusting capitation payments for differences in patient characteristics, limiting the scope of the capitation payment, and providing reinsurance to providers. Group capitation arrangements pool the costs for a large patient panel and share income across participating physicians, but larger risk pools may also dampen individual incentives to practice efficiently and effectively because the consequences of a physician's inefficiencies are spread across a wide group. Better models to adjust capitation rates for patient characteristics that influence future utilization would minimize the effects of biased selection. Unfortunately, risk-adjustment models are in a very early stage of development (McClure, 1984; Thomas and Lichtenstein, 1986). Risk can be limited by narrowing the scope of the capitation payments to include only primary care services. But this arrangement also provides an incentive to primary care physicians to minimize their services and to maximize the use of specialists and hospitals. When reinsurance provisions require an HMO to assume complete risk for the costs of "outlier" patients, there is little incentive for physicians to manage high-cost cases carefully. So reinsurance frequently requires an HMO to assume only part (such as 75 percent) of the costs of outlier patients, with the physician bearing responsibility for the remaining amount.

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[12] Some IPAs do have extensive formal mechanisms for the review of patient care provided in private practice settings (Stocker, 1988).

Strong Incentives Concerning Individual Patient Decisions. The increased use of risk-sharing arrangements raises concern that the impact of incentives has shifted from overutilization to underutilization. Underutilization, especially lack of access, is perceived by some as more damaging to an individual patient than overutilization. It may also be more difficult to detect.[13]

Either individual or group decisions can bar patient access to a service. [Risk contracting arrangements at the group level frequently influence individual physician decisions (for example, staffing levels for secretaries, nurses and technicians).] Most physicians are guided by strong professional ethics, and moderate financial incentives would not compromise patient care. But less conscientious physicians might hold back on certain services.

Of particular concern is the effect of risk sharing arrangements on referrals to specialists. Some physician groups have requirements that a referral to an outside specialist be approved by an administrator, or that referrals be limited to selected specialists. Also, when forced to assume the costs of specialty referrals, some primary care physicians might overestimate their own ability to manage a case, and delay or forgo referrals.

Deterrents to Underutilization. Traditionally, reliance has been placed on informal and formal peer review and the threat of malpractice litigation to deter or detect inappropriate decisions about patient care. Informal peer review probably plays an important role in detecting inappropriate care in hospital settings. But it plays a limited role in the ambulatory setting, especially for physicians in solo practice, in small groups, or in groups with little integration of practice.

Formal peer review programs for ambulatory care are more prevalent in the capitated than fee-for-service sectors. Federally qualified HMOs must have internal quality assurance programs, but many of these programs have serious limitations (Mathematica Policy Research, 1987). Also, HCFA's Office of Prepaid Health Care (OPHC) conducts on-site inspections of HMOs. In the past, these reviews have not been routinely performed, in part because of OPHC staff shortages (General Accounting Office, 1988a). During the past year, OPHC's monitoring program has improved, and OPHC is attempting to conduct an on-site review of each HMO at least once every two years.[14] OPHC's monitoring program continues to be hampered by limited authority to levy sanctions.[15]

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[13] Some underutilization problems may be detected through formal and informal hospital review systems such as hospital admissions for preventable conditions (such as a diabetic coma) or conditions that should have been detected at an earlier stage (for example, advanced breast cancer). Other underutilization problems, such as certain unattended psychiatric illnesses, can probably only be detected through ambulatory care review.

The Medicare program should coordinate its monitoring efforts with private payers and state governments, which are also active in this area. In recent years, there has been a pronounced increase in legal requirements, guidelines, standards, and programs for the monitoring of prepaid plans. Large private sector organizations such as Blue Cross and Blue Shield of America, Prudential, and CIGNA Healthplan have incorporated periodic on-site review in their systems to insure accountability. There are also more extensive review requirements and programs at the state level.[16]

A third deterrent to inappropriate care is the threat of malpractice litigation. It is difficult to assess how much fear of lawsuits mitigates tendencies to limit services inappropriately. The inability of patients to identify underutilization reduces the potential threat of malpractice lawsuits. Courts face similar limitations in trying malpractice cases. It is difficult for judges and juries to attribute poor outcomes to the omission of needed services.

LIMITING RISK-SHARING ARRANGEMENTS

Although the impact of risk-sharing arrangements on patient care raises concerns, prohibiting such arrangements may not be in the best interest of Medicare beneficiaries. At present there are no data to indicate that risk-sharing arrangements have an adverse effect on access or quality (General Accounting Office, 1988b), and financial incentives may actually improve the appropriateness of patient care. Any broad-based restrictions on risk-sharing would also likely result in the termination of many Medicare risk contracts and consequently a reduction in beneficiary access to prepaid plans.

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[14] In fiscal year 1988, 48 visits to HMOs were conducted jointly by HCFA regional and central offices, and another 130 visits were conducted independently by regional offices. Some proportion of these visits represented multiple visits to a single HMO. A "visit" may be made to provide technical assistance, to investigate a complaint, to follow-up on a previously identified problem, or to conduct a review of an HMO's operations.

[15] Although HCFA's ability to take action against noncompliant HMOs was broadened with the enactment of the Omnibus Reconciliation Acts of 1986 and 1987, the levying of certain sanctions (such as suspension of enrollment) is limited and cannot be used to deal with all types of contract compliance problems, including problems of fiscal soundness and enrollment practices (General Accounting Office, 1988a).

[16] As of 1987, 46 states had adopted specific legislation pertaining to HMOs (Aspen, 1987). In the remaining states, HMOs are regulated under traditional mechanisms applicable to insurors. Several states directly sponsor monitoring programs, while others contract with private accreditation organizations, such as the Joint Commission on Accreditation of Healthcare Organizations, the National Committee for Quality Assurance, and the Accreditation Association for Ambulatory Health Care.

Absence of Empirical Data

Overall, the relevant literature shows that HMOs provide generally equivalent or superior quality of care to that received within the fee-for-service sector (Sloss, Keeler, Brook, et al., 1987; Ware, Brook, Rogers, et al., 1986). But these analyses have usually focused on the nonelderly population and on large group or staff model HMOs. In these models, reliance on strong financial risk incentives on individual physicians to control use of services is less common than in IPAs. Several studies have found lower rates of utilization of certain health services in prepaid settings than in fee-for-service settings. But none of these studies evaluated the quality of care associated with lower utilization (Epstein, Begg and McNeil, 1986; Manning, Leibowitz, Goldberg, et al., 1984; Wells, Manning and Benjamin, 1986; Greenwald, 1987).

The widespread adoption of risk-sharing arrangements by HMOs indicates their belief that financial incentives represent an important mechanism for controlling costs and increasing productivity. The economic failure of some HMOs is frequently linked to the absence of strong financial risk incentives (Egdahl and Taft, 1986; Freund, 1987; Moore, Martin and Richardson, 1983).

If properly structured and integrated into a formal and informal peer review environment, physician risk-sharing may be an effective way to improve patient care. Wide variations in medical practice have been documented in the literature, possibly indicating areas for improving the appropriateness of medical care (Wennberg and Gittelsohn, 1982; Chassin, Brook, Park, et al., 1986; Loop, Christiansen, Lester, et al., 1983). There have been some attempts to modify physician practices using nonfinancial approaches such as education, information feedback and utilization review, but these efforts have enjoyed only limited success (Eisenberg, 1986).

Limited Beneficiary Opportunities to Join HMOs

Broad prohibitions on risk-sharing arrangements would probably result in the termination of many risk contracts by HMOs and seriously jeopardize the future of the Medicare risk contracting program. Nearly all prepaid plans have compensation packages that place physicians individually or collectively at some degree of risk for the cost of patient care. Only 21 percent of HMOs have Medicare risk contracts, and they account for only about 3 percent of total HMO enrollees (InterStudy, 1988b; Office of Prepaid Health Care, 1988). Medicare is therefore not a major third-party payor for managed care plans. If legislative prohibitions were imposed on risk-sharing arrangements, prepaid plans would have to decide whether to modify their compensation packages and risk higher costs, or terminate their Medicare contracts altogether.

Beneficiaries would lose if access to HMOs was reduced, because many HMOs provide beneficiaries with certain advantages over the traditional fee-for-service system, most notably reduced copayments and expanded benefit coverage. In HMOs, beneficiary copayments for both ambulatory and inpatient services are either very low or nonexistent (Williamson Institute for Health Studies, 1988).

Beneficiaries enrolled in HMOs generally also have expanded acute and long-term care coverage.[17]

Beneficiaries in HMOs are limited in the selection of a primary care physician and specialists. Using a designated primary care physician to coordinate services is intended to provide more comprehensive and appropriate patient care, but the primary care physician may also serve as a barrier to needed care.

Although there are reasons to be cautious about restricting risk-sharing arrangements, the Commission is concerned about the potential for financial incentives to interfere with the delivery of appropriate health services. The next section provides an analysis of various policy options.

POLICY OPTIONS

Medicare can pursue two directions in establishing a policy on financial incentives: legal restrictions on the use of financial incentives, and increased monitoring of the quality and accessibility of health care. These alternatives, discussed below, are not mutually exclusive.

Legal prohibitions on the use of risk-sharing mechanisms would remove some financial incentives for inappropriate care. Unfortunately, legal prohibitions would probably also eliminate many arrangements that are effective in controlling costs.

Regardless of whether legal prohibitions are imposed, increased monitoring would clearly be desirable. Monitoring could identify a variety of access and quality problems in addition to problems tied to the use of financial incentives. But monitoring alone would be inadequate. It might not uncover all quality and access problems, and it is difficult to link such problems to the use of financial incentives. Also, mechanisms may not be in place to resolve adequately the problems that are identified.

Beneficiaries and physicians should have more information on financial incentives before they join a medical plan. But given the complexity of these compensation packages, relying solely on consumer and physician judgement would be unwise. Many physicians may not know what levels of risk are acceptable, and beneficiaries may find it difficult to assess the effects of financial incentives on patient care.

Legal Prohibitions

There are three options for legislative or regulatory restrictions on the use of financial incentives:

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[17] A 1987 survey of HMOs with Medicare risk contracts found that the majority of HMOs go beyond standard Medicare coverage to include additional benefits such as extended hospitalization, preventive care, vision care and prescription drugs (InterStudy, 1987). As for long term care services, nearly one-third of plans offered expanded skilled nursing home care; all plans offered home health care with no limit on days, no additional copayment, and 95 percent required no prior hospitalization; 27 percent offered other supportive home care, such as homemaker services without copayment or prior hospitalization.

- Prohibiting specific types of compensation arrangements, for example, broadly defined capitation arrangements covering services other than primary care;
- Prohibiting risk-sharing arrangements at the individual physician level; and
- Limiting the total risk assumed by a physician or group.

Limits on Specific Types of Arrangements. Alternative approaches to placing limits on capitated arrangements include:

- Prohibiting capitation as a basic method of payment;
- Placing no limits on capitation but prohibiting additional incentive payments for specialty or hospital care;
- Allowing primary care capitation, but prohibiting incentives related to specialty or hospital care; and
- Allowing primary care capitation and some additional incentive payments for specialty or hospital care.

The first alternative, prohibiting individual- and group-level capitation, would have a major impact on the HMO industry, since the majority of HMOs use some form of capitation. This, in turn, would reduce beneficiary access to prepaid plans since fewer providers would participate in the Medicare Risk Contracting Program. The only remaining basic compensation mechanisms available to HMOs would be salary or fee-for-service. Salary has traditionally been unacceptable to the majority of the medical profession. Exclusive reliance on salaried arrangements would exclude IPA participation in the Medicare program. Fee-for-service tends toward overutilization unless accompanied by utilization review which is limited in both effectiveness and physician acceptability.

Prohibiting incentives such as bonuses and withholds without limiting capitation is perhaps the least desirable alternative from the standpoint of both beneficiaries and physicians. An HMO might be expected to move towards broadly defined capitation arrangements. This would increase both the overall risk to physicians and incentives for underutilization of services.

The third alternative, allowing primary care capitation but prohibiting risk- sharing for hospital or specialty referrals, would likely threaten the financial viability of HMOs. The use of primary care capitation without withholds or bonuses provides incentives for the primary care physician to minimize his own services and to maximize hospitalizations and referrals to specialists.

The fourth alternative, allowing primary care capitation and moderate additional incentive payments for hospital and specialty care, appears to be the most reasonable approach. This would limit both the amount of risk to physicians and the impact of hospitalization and specialty referrals on a physician's income.

This approach is currently used by most HMOs using capitation as a basic method of payment. But there is significant variation in the proportion of risk assumed by primary care physicians for specialty and hospital care. This variation is expected. The risks (and strength of incentives) associated with any given package are determined by a number of factors. These factors include specific characteristics of the panel of patients (size, selection bias, number, case-mix), and the provider (group or individual, array of services provided directly, proportion of practice capitated, financial reserve available to cover potential losses). An additional factor is the health care system (for example, degree of price competition among specialists for HMO referrals). Consequently, the "optimal" compensation package--one that provides physicians with incentives to deliver all appropriate services and disincentives to deliver inappropriate services--takes different forms for HMOs and maybe even for physicians or groups within an HMO.

Requiring HMOs using capitation to adopt capitation payments for primary care only, accompanied by moderate risk-sharing for specialty and hospital services, requires the specification of limits on risk-sharing. For example, withholds for hospital care and specialty referrals might be limited to 10 and 30 percent, respectively, with the aggregate effect of all withholds not to exceed 30 percent of payments. These limits would have to be set arbitrarily since there is no information about how various levels of risk assumption influence behavior. Another drawback of this approach is that all compensation arrangements would probably be subject to the same limits, even though many factors influence the optimal levels of risk assumption.

In addition to restrictions on capitated compensation methods, incentive payments might also be restricted in conjunction with either fee-for-service or salary. Using the incentives of bonuses or withholds to counter a tendency toward decreased productivity and overutilization by salaried and fee-for-service practices is not of great concern as long as these additional payments are not excessive. To minimize any possible effect of these additional payments on patient care decisions, the maximum proportion of compensation received in the form of additional incentive payments could be restricted. These limitations would have to be set arbitrarily, because there is little information to indicate what effect various levels of risk-sharing has on physician behavior. In addition, imposition of limitations would require monitoring for compliance.

Group-Level Risk-Sharing Arrangements. Legislation or regulations could be developed to require HMOs with risk-sharing arrangements to use group-level incentives, such as group capitation payments and withholds or bonuses based on the performance of a group. Increasing the size of the risk pool is one of the most effective ways to reduce risk on individual physicians. Group incentives may also promote active peer review when the physicians in a group actually occupy a common setting or are members of the same hospital medical staff.

Before implementing a requirement that financial incentives be based on group performance, it is necessary to define what constitutes a "group." If the risk of incurring a large loss in any given year is to be reduced significantly, a group must encompass an adequate number of HMO patients to average out the effects of random fluctuations. If an objective of group level incentives is to promote informal peer review, moderate to large groups of physicians (for example, 10 or greater) may be more desirable than smaller groups of perhaps three to five physicians. On the other hand, the larger the group the less direct the relationship between individual performance and compensation.

Overall, the use of group incentives seems to afford some degree of protection against excessive risk assumption by individual physicians, and may also encourage peer review.

Limit on Total Risk Assumed. To prevent a physician or group from experiencing a large loss in any given year due to random variation, HMOs could be required to incorporate "stop-loss" provisions in their compensation packages. The "stop-loss" provision might apply to an individual patient or to the physician (or group) practice. If a "stop-loss" is applied at the individual patient level, it protects the physician against the costs of care associated with catastrophic cases (for example, beneficiaries with aggregate annual costs in excess of two standard deviations from the mean cost for all beneficiaries). One disadvantage is that individual stop-loss provisions provide little incentive for a physician to manage effectively the most expensive patients. But such high-cost cases are generally the focus of hospital and HMO concurrent and retrospective utilization review programs.

A "stop-loss" applied to the total costs for a physician's (or group's) HMO patients also protects physicians against incurring large losses in any given year, and avoids many of the negative effects of individual patient "stop-loss" provisions. Physicians have an incentive to overutilize services only when their total HMO patient care costs approach the "stop-loss" limit. As long as the "stop-loss" limit is not set too low, these situations will be infrequent, and should also be easily detected and monitored through utilization review.

"Stop-loss" arrangements are a form of reinsurance. HMOs might be required to incorporate such provisions into physician compensation arrangements, in which case the HMO would be providing the reinsurance. Or physicians entering into risk-sharing arrangements could be responsible for purchasing reinsurance from either the HMO or a private insurance agency. The HMO is a likely supplier of reinsurance because through utilization and quality review mechanisms, it is in a strong position to detect any abuses of the reinsurance provisions. Stop-loss provisions can be applied to both capitated arrangements and fee-for-service or salaried arrangements with withholds.

Overall, "stop-loss" provisions are very effective mechanisms for limiting the risk transferred to physicians. Stop-loss requirements are also probably simpler for the Medicare program to specify and easier for prepaid plans to comply with than more specific limitations on other compensation arrangements. For example, prepaid plans that have risk-sharing arrangements with individual or small groups of physicians (5 to 10) might be required to limit risk for the costs of non-primary care physician services through a "stop-loss" provision applicable to high-cost cases. For instance, HMOs might reasonably bear at least 75 percent of service costs for patients whose total non-primary care costs during a given contract period place them in the top 5 or 10 percent of all the HMO's enrollees.

Monitoring

A second direction the Medicare program can pursue to identify inappropriate utilization is to improve both external and internal monitoring systems. Regardless of the degree of financial risk assumed by physicians greater monitoring is appropriate because it identifies a variety of access and quality problems in addition to those that may result from risk-sharing. Decisions regarding risk-sharing arrangements and monitoring activities are related, since it is reasonable to assume that active monitoring will reduce the threat to quality and access posed by risk-sharing arrangements.

It is unclear whether quality problems in HMOs are due to financial incentives. Monitoring may therefore represent a more prudent response to access and quality concerns rather than eliminating financial incentives that may or may not be the source of any problems. Emphasizing monitoring would allow HMOs to continue using incentives thought to be beneficial in promoting cost-effective patient care, and to tailor their compensation packages in response to the characteristics of their physicians (e.g., group or individual), their patients (e.g., size of patient panel), and their health care setting (e.g., degree of competition among specialists for HMO referrals).

One problem with monitoring is that it is an imperfect process. It requires both the accurate identification of access and quality problems (or characteristics of the HMO that may cause access and quality problems) and the resolution of identified problems. There are also costs associated with monitoring.[18]

In general, there are four approaches: monitoring of the structural aspects of an HMO, increased PRO review, outcome monitoring, and beneficiary satisfaction monitoring. These approaches are not mutually exclusive; in fact, a well-designed monitoring system should probably include elements of each.

Monitoring of Structure. This type of monitoring focuses primarily on structural aspects of an organization that enable the provision of accessible, high quality patient care. These aspects include an effective internal quality assurance program, an active physician credentialing process, a medical record system with available, well-documented patient records, and balanced systems for physician performance evaluation and compensation. Periodic on-site evaluations are conducted to determine compliance with established standards.

External monitoring is not a substitute for a prepaid plan's internal monitoring systems. The two should complement each other. The frequency of external monitoring should be inversely related to the strength of a prepaid plan's internal management systems and monitoring processes. A structural monitoring program should focus on those prepaid plans in need of education, information and technical assistance, while minimal resources should be devoted to established plans with strong internal monitoring systems.

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[18] The Medicare program currently incurs costs associated with review processes conducted by HCFA's Office of Prepaid Health Care and the Peer Review Organizations (PROs). HMO costs include the expenditures associated with the operation of internal monitoring systems and the costs of responding to the requests of outside review organizations.

External monitoring of structure may be conducted by either a public or private entity. In either case, HMOs should be required to comply with a set of standards or regulations. HCFA would continue to be responsible for taking appropriate action in the event that a prepaid plan is not in compliance with legislative and regulatory requirements.

The two types of public entities currently involved in monitoring the structural aspects of HMOs are HCFA's Office of Prepaid Health Care and the state governments. As mentioned above, HCFA is developing a more active monitoring program than it has had in the past. At present, most states have little experience in conducting reviews of HMOs, but several do sponsor review programs and others have contracts with private accreditation organizations to satisfy state legislative requirements.

Private accreditation programs include the Accreditation Association for Ambulatory Health Care (AAAHC), Joint Commission on Accreditation of Healthcare Organizations (JCAHO), and National Committee for Quality Assurance (NCQA). AAAHC accredits a wide variety of organizations providing ambulatory care using a common set of standards tailored to type, size and range of services offered. Until recently, JCAHO focused on hospital and ambulatory care, but a managed care program is under development and scheduled for implementation in late 1989. NCQA has limited its accreditation activities to HMOs so its program is specific to prepaid plans.

In its 1988 Report to Congress, the Commission recommended that all entities participating in the Medicare Risk Contracting Program be subject to periodic accreditation. The Commission continues to believe that a strong structural monitoring program based on high standards would exclude poorly administered HMOs from participating in the Medicare risk contracting program and encourage all HMOs to make continuous improvements in their internal operations.

The Commission supports OPHC's recent efforts to strengthen its monitoring program, but is concerned about the proliferation of both public and private monitoring programs and requirements. These efforts need to be coordinated.

PROs. Monitoring of quality and access might also be intensified through increased PRO review of HMOs. PROs primarily sample individual cases to assess the process and to some extent the outcomes of patient care.[19]

PRO review of HMOs is relatively recent and it is too early to judge its effectiveness. (In 1986, Congress passed legislation providing for the review of HMOs by PROs. Most contracts for HMO review were awarded by HCFA in June

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[19] There is no clear distinction between the activities of external structural monitoring programs and of PROs. Structural monitoring programs frequently incorporate a medical record audit. PROs, upon the request of an HMO, conduct an assessment of the HMO's internal quality assurance system. HMO's found to have strong internal quality assurance systems receive only limited PRO case review.

1987.) It is unclear whether there would be additional benefits from more intensive review. But if conducted, such review should focus on HMOs with capitation-based compensation arrangements, and they should be targeted to detect any inadequate use of specialists and hospitals.

Outcome Monitoring. A third option would focus on measuring patient outcomes that might indicate inappropriate care, such as mortality, hospital readmissions, and poor health status. HCFA has recently established a monitoring system that provides annual statistics on raw mortality rates, age-adjusted mortality rates, total hospital admissions, hospital admissions by age, sex, and race, readmission rates, mortality rates after admission, and morbidity and mortality associated with various clinical conditions (Roper, Winkenwerder, Hackbarth, et al; 1988). There are also private initiatives to measure outcomes. JCAHO is working to develop clinical indicators that can be used as screening devices to identify problems in the organization, provision or monitoring of care (JCAHO, 1987).

These efforts to monitor outcomes are currently hampered by lack of knowledge of the appropriateness and effectiveness of various clinical practices, and the absence of adequate risk-adjustment models and appropriate data for evaluation purposes.[20] Quantitative measures of outcome are in early stages of development, and probably should not be relied upon to identify quality and access problems. But in the long run, outcome monitoring will probably be an important component of Medicare's program for insuring HMO accountability.

Beneficiary Surveys. As a fourth option, Medicare could conduct periodic satisfaction surveys of beneficiaries currently or previously enrolled in HMOs to assess the quality, accessibility, acceptability, and affordability of patient care.

HCFA's Office of Prepaid Health Care is presently sponsoring a mail survey of beneficiaries who have disenrolled from HMOs to identify their reasons for disenrollment.[21]

The Group Health Association of America (GHAA) recently sponsored the development of a Consumer Satisfaction Survey and User's Manual to provide an objective, reliable instrument for measuring and comparing consumer satisfaction among HMO enrollees. (GHAA, 1988a). The survey asks about satisfaction with medical care, access to care, financial impact, technical quality, communication, choice and continuity, interpersonal care, and outcomes.

It is too early to evaluate the usefulness of this survey information in identifying access and quality problems so exclusive reliance on this approach would be inappropriate. But HCFA could improve its current approach to monitoring beneficiary satisfaction by surveying beneficiaries who have never enrolled in HMOs, those currently enrolled and those recently disenrolled. This would help assess beneficiary satisfaction in both the fee-for-service and capitated sectors.[22]

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[20] As discussed in Chapter 12, support is needed for the development and application of practice guidelines. The 1989 fiscal year budget for the Public Health Service does include $15 million to develop and disseminate information on practices that enhance patient outcome (Roper, Winkenwerder, Hackbarth, et al.; 1988).

[21] HCFA is also developing a centralized computer file of inquiries or complaints to its regional offices by HMO enrollees, known as the Beneficiary Inquiry Tracking System (BITS).

SUMMARY AND CONCLUSIONS

Although concern about the potential effects of financial incentives is appropriate, response to this concern should be cautious. There is a lack of evidence to substantiate that risk-sharing arrangements have a deleterious effect on patient care. Without this evidence, it is inappropriate to subject HMOs to extensive restrictions that would hamper their efforts to provide comprehensive, high quality services at a reasonable price. At this time, the best approach may be for Medicare to adopt limited restrictions on the use of financial incentives and strengthen its monitoring effort.

Broad prohibitions on the use of capitation or supplemental payments such as withholds or bonuses are premature in the absence of information regarding their effect on patient care. But some restrictions on the degree of risk transferred to physicians and groups through the incorporation of "stop-loss" provisions would afford some protection to beneficiaries.

The Commission recommends that all Medicare HMOs and CMPs that have risk-sharing arrangements with individual physicians or small groups be required to limit risk for the costs of non-primary care physician services through use of a stop-loss provision. Prepaid plans contracting with larger physician groups would not be affected by this requirement. The stop-loss provision would apply only to the cost of non-primary care services, primarily specialty care, ancillary services, and hospital care.

In addition, the Commission finds that it is generally preferable for financial incentives tied to efficiency or productivity measures to be based on group rather than individual performance. Group risk-sharing reduces the effect of specific patient decisions on a primary care physician's personal income, and encourages peer review and other managerial controls on risk. But limited use of individual incentives tied to efficiency and productivity, when strong internal quality control exists, should be permitted to respond to variations in individual performance.

Over the long run, it is important to develop comprehensive performance evaluation systems that assess accessibility, quality, efficiency and productivity. Financial incentives based on measures of patient satisfaction, accessibility and quality of care should be encouraged at both the group and individual physician levels.

The Commission endorses comprehensive monitoring of the structural aspects of prepaid plans and supports OPHC's efforts to improve the HMO monitoring program. But it continues to be concerned about the proliferation of both public and private monitoring programs and requirements. It urges a coordinated approach to the development of standards and their monitoring.

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[22] HCFA is assessing the cost and desirability of implementing an ongoing survey mechanism known as the Current Beneficiary Survey (CBS). The survey would follow a representative sample of Medicare beneficiaries over time to assess patterns of use, sources of coverage and payment, and beneficiary demographic characteristics, health and functional status, assets, income, work history and family support. If implemented, this survey mechanism might serve as an appropriate vehicle for gathering information on both beneficiaries enrolled in prepaid health plans and those in the fee-for-service sector (Chapter 10).

The Medicare risk contracting program should periodically measure beneficiary satisfaction with the accessibility and quality of patient care. It is not intended that survey information specific to individual prepaid plans be collected--the costs of which would be prohibitive. Beneficiaries enrolled in both the capitated and fee-for-service sector should be included in the survey, which should identify potential problems associated with alternative types of delivery systems.

Disclosing information on risk-sharing arrangements to physicians and beneficiaries might provide an additional measure of protection. Detailed disclosure of information to physicians would ensure that before joining a plan's medical staff or group, physicians could adequately evaluate the appropriateness of the plan's compensation methods. Information on risk-sharing arrangements made available to beneficiaries should be far less technical because the arrangements are frequently complicated. Detailed descriptions might create confusion and unnecessary concerns. General information about the responsibilities of the primary care physician to provide high quality patient care in a fiscally responsible manner would be appropriate.

In addition, it is imperative that research be conducted to measure the effect of risk-sharing arrangements on physician behavior, and consequently the accessibility, quality, cost, and efficiency of patient care received by beneficiaries. This research could focus on such factors as individual- versus group-level incentives, size of the physician group, magnitude of total risk assumed at the individual- and group-levels, and incentives applicable to hospital and specialty care.

Research is also needed on the effects of patient characteristics (e.g., age, socio-economic status, functional capacity, severity and stage of illness) on the use of services so that models and methods could be developed to adjust physician compensation for those patient characteristics that suggest higher or lower utilization. More sophisticated risk-adjustment models might result in a more equitable payment mechanism between HCFA and prepaid plans. The research results might also enable HMOs to plan better for the needs of enrolled populations.

These research projects should be a high priority for HCFA in 1989-1990, because they could lead to an improvement in the overall efficiency of the health care system.

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APPENDIX A

DESCRIPTION AND EVALUATION OF HSIAO STUDY

The Commission has evaluated the research of William Hsiao and his colleagues on developing a resource-based relative value scale (RBRVS) for physician services. This appendix examines the Hsiao study and summarizes the Commission's evaluation of the study, the Commission's suggestions for work that will be undertaken by Hsiao in phase two, and the Commission's own work to develop the Medicare Fee Schedule based on the RBRVS.

The first phase of the study by William Hsiao, et al., *A National Study of Resource-Based Relative Value Scales for Physician Services: Final Report to the Health Care Financing Administration* was completed in September, 1988. A *Supplemental Report* containing additional analysis on evaluation and management services and other "unresolved services" was issued in December, 1988. The investigators will soon begin Phase II of the study which is scheduled for completion in 1990.

The Commission has reviewed the methodologies and results, constructed simulation models to assess the impact of the Hsiao RBRVS on groups of physicians and beneficiaries, and heard testimony from approximately 45 specialty societies and beneficiary organizations through a series of public hearings and meetings.[1] The Commission has also had the opportunity to review independent evaluations prepared for other clients by several research and consulting organizations.

We conclude that Hsiao's basic approach and methodology are sound, but several necessary components of a RBRVS require considerable additional work and others must be redone entirely. Improvements are recommended in the method for estimating preservice and postservice work, coding for evaluation and management services, assigning relative work values to evaluation and management services, and the method for extrapolation. The Commission does not agree with the fundamentals of the practice cost index developed by Hsiao and recommends an alternative. Also needed is additional analysis to correct specific errors in estimates of relative work for specialties studied in phase one. Finally, we do not endorse the inclusion of a separate factor for opportunity costs of specialty training in the calculation of relative values. These refinements will be accomplished either in Phase II of the study or through the work of the Commission.

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[1] The work of several consultants including a psychometrician, a statistician, and several physicians contributed to the Commission's evaluation.

BACKGROUND

The Consolidated Omnibus Reconciliation Act of 1985 mandated that the Secretary of HHS develop a relative value scale for the purpose of setting physician fees. The Harvard School of Public Health was awarded a grant to carry out this task. The Harvard team, led by William Hsiao Ph.D., was assisted by the American Medical Association, a subcontractor in the project. The investigators sought to identify the costs of physicians' services and incorporate them into a resource based relative value scale. The objectives of Phase I were to:

- Develop resource based relative values for a core set of services for each of 18 medical and surgical specialties;
- Incorporate the relative values of each specialty into a common scale that allows comparison across specialties and permits the use of a single conversion factor;
- Subject the methodologies and preliminary findings to tests of reliability and validity, including evaluation by experts in medicine, psychology, economics, statistics, and health policy (Hsiao et al., 1988).

In Phase II, the scope of the study will be expanded to include additional specialties, and to improve upon the relative work values for the specialties studied in Phase I. Physician estimates for relative work and time will be obtained using the same basic survey approach.

The RBRV Model. To meet these objectives, the investigators developed a model for the RBRVS that incorporates three resource inputs of physicians' services:

$$RBRV = (TW)\ (1 + RPC)\ (1 + AST)$$

where TW is total work, RPC is an index of relative practice costs by specialty, and AST is an index of amortized value for the opportunity costs of specialty training. This model builds upon earlier research by Hsiao, Braun and Stason and includes the two major resource inputs of physician services: the physician's own time and effort (work) and the cost of operating a practice (Hsiao and Stason, 1979; Hsiao and Braun, 1985).

Total Work. Application of the model required reliable and valid estimates of total work. Total work was partitioned into preservice, intraservice, and postservice work. Magnitude estimation, a technique used to estimate a subjective quantity in relation to a standard, was used to measure the intraservice work of physicians. Preservice and postservice work were imputed using estimates of preservice and postservice times and intraservice work. The following formula was used to derive total work for each service:

$$TOTAL\ WORK = PRE\ WORK + INTRA\ WORK + POST\ WORK$$

The researchers justify this approach in two ways. First, they report that the nature of the tasks involved in the preservice, intraservice and postservice components of total work are all quite different from one other. The cognitive process required to estimate total work is more complex than estimating intraservice work because it requires aggregating unlike activities that may span several days. For example, an estimate of total work for a surgical procedure could include reviewing records, ordering lab studies, visiting the patient, performing surgery, providing postoperative care, visiting the patient daily, and dictating an operative report.

The second reason total work was not directly surveyed is that the pre- and postservices provided in relation to a surgical procedure are often bundled for billing purposes. As explained in Chapter 4, a global surgical service policy is not uniformly applied across carrier areas. This lack of uniformity made it difficult to construct one accepted bundle on which to base a survey. Hsiao reasoned that his partition of work into three components provided the building blocks for the construction of the global surgical service.

The national survey of 18 specialties focused on estimating relative intraservice work and time. The investigators incorporated the results of twenty face-to-face interviews held with Boston physicians into the design of the instrument used in a pilot survey. The interviews were conducted by a psychologist who asked physicians to identify the major dimensions of their work. Six dimensions of work were identified as being most important: time; mental effort; knowledge, judgment, and diagnostic acumen; technical skill; physical effort; and psychological stress. Furthermore, physicians were asked to name other factors that affect their level of work when caring for individual patients. They cited complexity of the problem, seriousness of the condition, uncertainty about the diagnosis or treatment, and the risk of iatrogenic harm. The results of the pilot work led the investigators to reduce the dimensions of work to five in the national survey.

Practice Costs. Next, estimates of the overhead for each service were required. Practice costs were defined as "those costs of practice that exclude the physician's own time and effort" (Hsiao, et al. 1988). They include salaries for ancillary personnel, equipment costs, professional liability insurance (PLI) premiums, and rent. Ideally, a practice cost adjustment should be service-specific and account for the nonphysician costs of providing that service. Assigning practice costs to individual services is an enormous task given the volume of services and was not attempted by the researchers. Their method, in effect, proportionally allocated practice costs according to the total work the service entails.

Specialty Training. Finally, a technique was developed to amortize the opportunity costs of specialty training over the working lifetime of a physician. A factor based on the opportunity costs associated with specialty training was incorporated into the model as a specialty differential. An index, developed by summing the opportunity costs associated with each year of specialty training, was used to adjust net income as compensation for specialty training.

Each of these components of the RBRV formula are discussed in detail below within the context of the overall study.

DEVELOPING A MULTI-SPECIALTY SCALE OF RELATIVE WORK

Much of the effort of Hsiao and his colleagues was directed toward the development of a multi-specialty scale of relative work. Briefly, the steps in the study were:

- A model of physician work was developed that partitioned work into preservice work, intraservice work, and postservice work (described above);
- Vignettes for a representative sample of about 20-25 services were developed for each specialty. Each vignette was intended to represent the average service for a corresponding procedure code;
- A national sample of about 185 physicians in each specialty was selected to be surveyed for estimates of the time, the work, and intensity of work for the services in each specialty, relative to a standard service (approximately 100 physicians per specialty were surveyed);
- After removal of "outlier" responses, the individual physicians' estimates of relative intraservice work were statistically averaged for each vignette or service in the sample, yielding a scale of relative work for 20-25 services in each specialty;
- The scales of intraservice work for all specialties were statistically linked through services identified as "same" or "equivalent" to form a single scale of relative intraservice work for all specialties;
- Preservice and postservice work were estimated and combined with intraservice work for each service to construct a single scale of relative total work for all specialties;
- Each vignette was assigned a corresponding service or procedure code from the Common Procedural Terminology (CPT) nomenclature so that the total work value was associated with a CPT code; and

- Using existing charge relationships within small families of services and procedures, the relative work values for the surveyed vignettes were extrapolated to the unsurveyed vignettes to generate a scale of relative work for most physician services.

This section describes the study in greater detail beginning with the selection of specialties and concluding with a description of the extrapolation process.

Selection of Specialties

Eighteen specialties were surveyed in Phase I of this project. Twelve of these were funded by the Health Care Financing Administration (HCFA) and six by charitable, public or educational institutions. The twelve original specialties were selected on the basis of the quantity of care they deliver to the Medicare population, as measured by cost data from HCFA, and the number of physicians in these specialties. The original twelve specialties were:

anesthesiology
family practice
general surgery
internal medicine
obstetrics and gynecology
ophthalmology
urology
orthopedic surgery
otolaryngology
pathology
radiology
thoracic and cardiovascular surgery

The added specialties were:

allergy and immunology
dermatology
oral and maxillofacial surgery
pediatrics
psychiatry
rheumatology

The 1988 COBRA legislation mandated an extention of the study to fourteen additional specialties. These are cardiology, emergency medicine, gastroenterology, hematology/oncology, infectious disease, nephrology, neurology, neurosurgery, nuclear medicine, osteopathic medicine, plastic surgery, pulmonary medicine, physical and rehabilatative medicine, and therapeutic radiology. Phase II will survey each of these specialties.

The Technical Consulting Groups (TCGs)

The American Medical Association (AMA), a subcontractor in the study, helped to coordinate the development of TCGs for each of the eighteen specialties.[2] The AMA, in consultation with relevant medical societies, nominated two to three persons for each position on the TCG. The investigators selected the members to achieve a mix (approximately 50/50) of physicians engaged in academic and private practice, and to insure broad geographic representation. The full TCG panel, numbering 100, was given the following assignment (Hsiao, 1988):

- Discuss the concept of a RBRVS including advice on the methodologies employed in developing a RBRVS and the strengths and weaknesses of these approaches.
- Identify the services and procedures used in the survey.
- Serve as consultants and inform the researchers of special features and demands of their specialties.
- Review the survey results for reasonableness.
- Review the calculated RBRVS for reasonableness.

The investigators also hosted a national consultative conference in March, 1988 shortly before the completion of the first phase. Participants included health economists, health services researchers, consumers, third-party payer representatives, and physicians.

Comment. The Commission concludes, based upon testimony from specialty societies and our understanding of the process, that the appropriate steps were taken to insure meaningful representation within the panel. Type of practice, geography, and important personal attributes were among the criteria used in the selection process. The structure of the process, as evidenced by the meeting agendas, was characterized by presentations, discussion, and iterative decisionmaking. While this structure appears to be sound, objective evaluation is impossible.

Some specialty societies expressed reservations about the consultation process. Their criticisms focused on the degree of responsiveness shown by the investigators to the ideas and concerns of TCG members. Despite the involvement of the

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[2] TCGs were also formed for other specialties that were neither included in the HCFA grant nor independently funded. One to three physicians nominated by the following specialties had some degree of input: cardiology, colon and rectal surgery, emergency medicine, gastroenterology, nephrology, neurosurgery, nuclear medicine, physical medicine, preventive medicine, pulmonology, and therapeutic radiology. In total, all 23 specialties recognized by the AMA were represented, as were many subspecialties.

AMA and specialty societies in the nominations, dissatisfaction with representation and the inability of the researchers to respond to all TCG panel members' issues persisted.

Several facts may have contributed to this. First, TCG members served as individuals, not as representatives of the AMA or specialty societies (Hsiao, et al., 1988). This may not have been made clear to the members of specialty societies. Second, the timetable for completing the study was very tight, especially from the summer of 1988 to September, 1988 when the report was sent to HCFA. During these final months, TCG panelists were involved in the process of extrapolating approximately 400 codes to over 6,000. Specialty societies were particularly critical of this step of the project. Finally, a consultative process, unlike a consensus process, does not have full agreement of all panel members as one of its goals. This may have created conflicting views regarding the effectiveness of the panel.

We recommend the following for Phase II:

- Continue to work with the AMA and specialty societies in choosing TCG members;
- Provide realistic timetables that allow panelists adequate time to study materials and respond to them;
- Clarify the purpose and goals of consultation with the specialty societies and panelists in order to gain and keep their support throughout the process.

Development of Vignettes

The first major task of the TCGs was to develop vignettes describing services and procedures. The vignettes were designed to represent a range of procedures and services within a specialty for the following: evaluation and management services (EM), invasive procedures, laboratory tests, and imaging and pattern recognition services.[3] TCG members were instructed to include vignettes describing new and emerging technology as well as established treatments and services. Members were also directed to write vignettes that could be interpreted easily and uniformly by all members of the specialty. The vignettes were intended to describe the average patient in terms of complexity.

The TCG members developed approximately twenty-two vignettes in each of the eighteen specialties, ranging from nineteen in three specialties to twenty-seven in one specialty. In total, 407 vignettes were developed with eighteen of these set as

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[3] For analytic purposes these four categories were later expanded by the research team to 14 categories. For example, evaluation and management services were further expanded to office EM, hospital EM, nursing home EM and emergency room EM.

"standards"; leaving 389 for direct survey.[4] Typically, each vignette specified site, whether the patient is new or established, if the service is a visit or consultation, and one to three symptoms or descriptors of the patient's condition. Approximately 43 percent specified patient age and 30 vignettes, or 8 percent, specified patients age 65 and over.

Comment. The Commission's evaluation of the vignettes focused on the following: vignette specification and the range of services for each specialty, the relationship of the vignettes to CPT codes, and the choice and placement of the standard vignette in the range of vignettes for each specialty. Each is addressed below.

The following limitations regarding specification were identified:

- The vignettes were not equally well-specified. For example, some included age; while others did not.
- The full range of services provided by some specialties was not represented by the selected vignettes. Range can be considered in two ways. First, it is necessary to include vignettes that cover a broad spectrum of the services provided by a specialty. This is particularly important for valid extrapolation to unsurveyed services.[5] It was difficult to do this using 22 vignettes because some specialties' range of services is so broad that hundreds of CPT codes are commonly used. In addition, some specialties have sets of procedures performed only by subspecialists. A second way in which to think of range is that a set of vignettes should describe relatively simple services, moderately difficult services, and complex services.[6]
- Services frequently provided to patients were not among the surveyed vignettes[7].

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[4] The standards were assigned a work value of 100. Participants were asked for time estimates of the standards.

[5] A set of vignettes can have sufficient range by including many of the commonly performed services and procedures, and by constructing a set large enough to be representative of a specialty's services. Some specialty societies testified that their set of vignettes did not do this, including the American Academy of Dermatologists and the American Academy of Orthopedic Surgeons.

[6] The American Psychiatric Association reports that their vignettes do not capture "a wide range of psychiatric services" and that those included "cluster at the low end" of their services.

[7] The Society of Thoracic Surgeons testified that the survey did not include the principal method of performing a coronary artery bypass graft operation (CABG)--using the internal mammary artery. Instead the survey included a vignette for a CABG using the saphenous vein, a procedure performed with decreasing frequency. The Society states that performing a CABG using the internal mammary artery is more difficult than the procedure using the saphenous vein, however, CPT does not distinguish between the two and the same code is used to bill for both procedures.

- Few vignettes specified persons in the Medicare population, especially the frail elderly.[8] There were approximately 30 vignettes specifying patients age 65 or over and very few, if any, that depicted true geriatric patients.

Instructions to respondents also lacked specificity in two important ways:

- Specifications regarding what was encompassed by intraservice work were unclear. For example, surgeons could interpret intraservice work as skin-to-skin time or operating room time, with different results.[9] Alternately, surgeons may have responded to vignettes with a bundle of services, or a global service, in mind. There is no evidence to prove or disprove this.

- Specification regarding the work of non-physician providers, such as nurses or physicians' assistants, was also unclear. The interviewers asked physicians to rate the work of a service. This may have been interpreted narrowly or broadly by participants. Specialties such as internal medicine have significant non-physician work components and this may have resulted in distortions of physician work ratings.[10] For example, vignette U in internal medicine is "EKG with interpretation in a 50 year old male". Frequently, a non-physician records the EKG and a physician interprets the result. It seems likely that mean time and work estimates of 36 minutes and 196 respectively reflect the combined work of physicians and non-physicians.

Lack of specificity in either the vignettes or the instructions may lead to varying interpretation that could account for outlier responses and variability in the data. Fully specified, uniformly understood vignettes could lead to more reliable (reproducible) and valid (true) estimates. This is discussed below under the Data Analysis subheading.

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[8] In their testimony, the American Association of Retired Persons (AARP) stated that the researchers should have placed more emphasis on vignettes describing the elderly because the study was directed toward the development of a RBRVS for reimbursement of Medicare services. The Commission recognizes that the Hsiao study was designed to create a RBRVS that could be used for all patients, not just Medicare patients. If a RBRVS was developed to apply only to Medicare, it could not be used by other payers.

[9] The Society of Thoracic Surgeons testified that skin-to-skin time, the time the investigators intended to capture in intraservice work, is not appropriate for many types of cardiac surgery. They report that pre-incision time, called "wait time" in the survey, is very intense and was not adequately factored into the total work value.

[10] The American Academy of Physician Assistants reports that there are 18,000 PAs and 65 percent of them work in primary care. In addition, nurse practitioners frequently provide primary care in family practice and internal medicine settings.

In the absence of fully specified vignettes, there is the possibility that physicians providing more complete care or higher quality care would respond with ratings quite different from their peers. If this were true, these physicians could be among the physicians ultimately discarded from the data set as explained below.

The Commission has several recommendations to refine Phase I and improve upon the methods of Phase II:

- Phase II vignettes should be specified in a uniform way and include important elements that can yield greater precision in work and time estimates. These elements should include, but not be limited to age, an indication of severity of illness, specific services rendered, and location of service.

- The set of vignettes for each specialty should include a range of services, and important services performed by subspecialties within specialties.[11] This will enable valid extrapolation to a larger number of services. Some specialties included in Phase I may require partial resurveying to achieve this.

- We recommend the inclusion of several vignettes that describe true geriatric patients.[12] Reliable estimates of the vignettes may require stratified sampling to include geriatricians.

- Instructions should specify what is meant by intraservice work and time for each specialty. For example, the surgeon should understand when the preservice period ends and when intraservice begins for operative procedures. The portion of the global surgical service that is being surveyed should also be clear to surgeons.

- Finally, instructions should explicitly ask for ratings of work and time for physician work alone.

Hsiao and colleagues have agreed to expand their work and survey additional services in three specialties that are particularly broad: internal medicine, general surgery, and orthopedic surgery.

Linking Vignettes to CPT Codes. CPT codes were assigned retrospectively to each vignette using a consensus process, when necessary, to resolve disagreements. The linkage of vignettes to CPT codes was difficult because of multiple interpretations of codes within and between specialties, especially for broadly defined evaluation and management services. There were two occasions when the same vignette was assigned different CPT codes in two specialties. In a small way, this demonstrates the inherent problems with the CPT system and the problems that must be overcome before RBRVs can be assigned to each code.[13]

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[11] This may require oversampling of subspecialties within specialties.

[12] These vignettes should describe patients who have multiple chronic medical problems, often complicated by socioeconomic problems, sensory deficits, reduced mental capacity, and other factors.

Several specialty societies testified regarding limitations of this part of the study. Each group recognized that despite the ambiguity of many CPT codes, it was necessary to incorporate the codes in the overall process of assigning RBRVs. The Commission's work to improve coding for evaluation and management services using the RBRVS results and data generated from a log diary survey of physicians, and its development of a standardized global surgical service policy will contribute to the development of a refined RBRVS. The investigators are also working toward coding reform for evaluation and management services and have proposed several options in their December, 1988 Supplemental Report.

Choice and Placement of Standard. Finally, the Commission examined the choice and placement of each specialty's standard vignette within the range of all of the specialty's vignettes. The reliability of estimates of work and time is likely to be higher if the standard vignette is well understood by all participants. Biases may be introduced if the standard is poorly understood or defined. Experiments using magnitude estimation often rely on exposure to a standard stimulus that can be measured on a metric scale (brightness, sound). Subjects are asked to compare a stimulus to the standard sound or light. Because the Hsiao study could not rely on a metric standard, it was essential that the standard vignette be clear and uniformly interpreted.

One specialty society testified that their specialty's standard was a poor choice because of "the variable risks of the procedure and the concomitant stress to the physician."[14] If this variability exists for a specialty, each physician could interpret the standard differently based on personal experience, and the estimates relative to the standard could be less reliable.[15]

The standard vignette should be placed within the midrange of work for the array of the vignettes (Stevens, 1975).[16] In theory, the position of the standard should not bias the estimates of work because respondents are providing ratio estimates of the comparative difference of two services, regardless of where each fits in the range.

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[13] See Chapter 3 for a complete discussion of CPT coding issues.

[14] The American Academy of Otolaryngology--Head and Neck Surgery. The standard was "tonsillectomy and adenoidectomy in a 10 year old child."

[15] The standard errors for the vignettes in otolaryngology were comparable to those found in other specialties, indicating that the reliability of these estimates is about the same as other specialties.

[16] This is distinctly different than stating that the standard vignette is the "average" service for a specialty.

It has been suggested that the selection of the standard from the extremes of the scale can produce variability in the results and cause "unwanted effects" (Stevens, 1975). For example, if a standard vignette is low in the range of vignettes (out of the midrange), estimates in the upper end of the scale may be distorted.

The Commission examined the placement of each specialty's standard vignette and found that some specialties' standards are below the midrange.[17] Pathology's standard was very low (only one service was below it) in the range of intraservice work values. The College of American Pathologists asserted that this "downgraded" the relative work of pathology services compared to services from other specialties (College of American Pathologists, 1988), but it is not possible to objectively determine whether this is so. The standards of the remaining specialties were not as low in their ranges. Three specialties had only three vignettes below the standard, while three others had four vignettes below the standard.

The Commission recommends that in Phase II careful attention be paid to the choice of each specialty's standard to insure that it can be clearly interpreted by members of the specialty, and that it describes a service that is within the midrange of all surveyed services. Some Phase I specialties may require resurveying to correct any bias that may have been introduced. Hsiao has agreed to resurvey dermatology and psychiatry during Phase II. Negotiations are underway to resurvey several other specialties (Hsiao, 1989).

The National Survey Sample

The researchers used the data from the pilot survey[18] to determine the sample size needed for the national survey. Using the standard deviation of the population for each of the specialties surveyed in the pilot, it appeared that a sample of 50 physicians per specialty would be adequate, if each physician gave estimates for all vignettes. This number was increased to 100 to allow for an ample margin. To assure the completion of 100 surveys per specialty and a response rate of 60 percent overall, a minimum of 185 names were drawn from the AMA Masterfile.[19]

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[17] Below midrange is defined as outside of the "hinges" when the data are displayed in rank order. A hinge is equal to .5 times (1 + the depth of the median).

[18] The pilot study included four specialties: general surgery, internal medicine, anesthesiology, and radiology. A telephone survey was administered to 266 physicians in seven northeast states with an overall response rate of 73.1 percent. The pilot tested several methodologies for use in the national survey including work and time estimations.

[19] The AMA Masterfile is the most comprehensive data source of U.S. physicians (AMA members and non-AMA members). The file contains historical and current information on every physician including type of practice and specialty. Specialty is self-designated.

Sampling for the Hsiao national survey followed these specifications:

- Seventeen specialties were drawn from the AMA Masterfile.[20]
- For each specialty, the sample was stratified geographically (ten regions in all) and by the proportion of specialists in that region. Each region was represented in the sample proportionally to its representation in the U.S., non-federal physician population.
- Within each specialty, the strata were representative of the specialty's national distribution of board-certified physicians.
- Subspecialty sampling stratification was performed on two specialties to represent subgroups within the population adequately. Radiologists were sampled in two groups: therapeutic and diagnostic radiologists; and cardiothoracic surgeons were sampled in two groups: general thoracic surgeons and cardiovascular surgeons.

To achieve a final sample of physicians, a two step screening process was employed. Initially, physicians drawn from the AMA Masterfile were screened to insure that each of the physicians met all of the following criteria: practiced patient care more than 20 hours per week, was not a resident, fellow, or doctor of osteopathy, had a current telephone number and address, was not a foreign medical graduate temporarily licensed to practice in the U.S., did not participate in the pilot, and was under 65 years of age.

Each eligible physician was sent a package of materials that included a letter from the AMA, a letter from the Harvard investigators, a description of the magnitude estimation technique, a list of the specialty's vignettes and a list of the dimensions of work and time that the physician would be asked to rate.

The second phase of screening reduced the eligible sample size further. The primary reasons physicians were dropped at this stage were either because they could not respond to 50 percent or more of the vignettes[21] or because they did not practice patient care for at least 20 hours per week. Once both screening steps were completed, the sample numbered 3,164. In summary, 3,722 names were drawn from the AMA Masterfile, 394 were excluded after the first screening, and 164 were excluded after the second step of the screening. Overall response rate for the Harvard Study was 62.5 percent, or 1,977 of the eligible 3,164 physicians. Table A-1 provides the response rates for the eighteen specialties.

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[20] Oral and Maxillofacial surgery is not identified as a separate specialty by the AMA, and therefore their sample was drawn from specialty society files.

[21] Seventy-five physicians or 46 percent of all those dropped at this stage said they could not rate 50 percent or more of the vignettes comfortably.

Table A-1. Sample Summary by Specialty

			NON-INTERVIEWS				
SPECIALTY	SAMPLE SIZE[a]	ELIGIBLE SAMPLE SIZE[b]	ACTIVE SURVEY NOT INTER-VIEWED	REFUSALS	OTHER	INTER-VIEWS	RESPONSE RATE
Totals	**3,328**	**3,164**	**424**	**760**	**3**	**1,977**	**62.5**
Allergy/Immunology	185	181	23	45	-	113	62.4
Anesthesiology	185	181	47	17	-	117	64.6
Dermatology	185	176	7	62	1	106	60.2
Family Practice	185	176	13	53	-	110	62.5
General Surgery	185	172	16	51	-	105	61.0
Internal Medicine	185	169	15	51	-	103	60.9
Obstetrics/Gynecology	185	179	10	69	-	100	55.9
Ophthalmology	185	175	12	58	-	105	60.0
Oral and Maxillofacial Surgery	185	183	36	29	-	118	63.8
Orthopedic Surgery	185	179	14	56	-	109	60.9
Otolaryngology	185	178	20	50	-	108	60.7
Pathology	185	175	53	3	-	119	68.0
Pediatrics	185	171	25	41	-	105	61.4
Psychiatry	185	168	20	43	1	104	61.9
Radiology	184	174	36	18	-	120	69.0
Rheumatology	185	181	45	17	-	119	65.5
Thoracic/Cardiovascular Surgery	184	165	13	50	1	101	61.2
Urology	185	181	19	47	-	115	63.3

Source: A National Study of Resource-Based Relative Value Scales for Physician Services, Final Report, Table 26.

Note: [a] Following Step 1 of screening process.

[b] Following Step 2 of screening process.

Comment. The sampling methodology is generally sound with a few exceptions. The Commission believes that excluding physicians over age 65 would not significantly affect estimates of time and work unless older physicians differ from their younger colleagues in their estimates of *relative* work and time. If these physicians were excluded because it was believed that they were less active in their profession, other criteria, such as 20 hours/week of patient care, would have screened inactive physicians from the sample. The Commission recommends that physicians not be excluded solely due to their age.

Second, oversampling of subspecialties may be necessary for some specialties and the vignettes should be chosen accordingly. This may be necessary to obtain a sufficient sample of work and time estimates on vignettes performed by a small subspecialty.

Non-Respondents. The response rate (62.5 percent) is within the range of response rates for other surveys of physicians, but low enough that it raises the possibility of non-response bias. Unfortunately, little is known about the non-respondents. They were randomly selected and eligible but not surveyed because they either refused, or were not interviewed despite repeated attempts.[22] If non-respondents were systematically different (busier, rural, etc.) than respondents, this could bias the survey results. However, this bias would be more likely to affect absolute responses than the relative values of physicians' work and time.

The investigators conducted a limited analysis of differences between respondents and non-respondents. In 95 percent of the cases, they found that there was no significant correlation between the number of phone calls made to a physician and the physician's ratings of work. This may be considered a proxy for identifying busy physicians and may ease concern about whether busy physicians were represented adequately. They also found few differences between respondents and non-respondents for two characteristics obtained from the original AMA Masterfile: board certification and geographic region. Only two comparisons were significant using a chi-square test (p less than .05): pathology for board certification and psychiatry for geographic region.

Additional analysis is needed to determine if there are systematic, or non-random, differences between respondents and non-respondents. One approach could be to obtain zip codes for all members of the sample (respondents and non-respondents) and link these to the Area Resource File.[23] This could enable the comparison of the two groups in a more definitive fashion. During Phase II additional characteristics of physicians could be collected during screening to analyze differences between respondents and non-respondents.

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[22] The investigators report making up to 32 attempts to contact physicians.

[23] The Area Resource File includes data by county on population, demographics, market area characteristics, and health care resources.

Estimates of Intraservice Work and Time

The primary purpose of the national survey was to obtain quantitative measures of one component of the model for a RBRVS, the total work value (TW). As was explained earlier, the researchers partitioned TW into three components and each was measured separately. The intraservice component measured direct face-to-face patient/provider contact, while the pre- and postservice components measured the work in preparing for a service and bringing the service to closure. The national survey focused on intraservice work and time estimates for the vignettes. A subset of vignettes (six per specialty) were surveyed for pre and post *times* only.[24]

Within each specialty, physicians were requested to estimate the following:

- time as measured in minutes;
- technical skill and physical effort;
- mental effort and judgment;
- stress due to iatrogenic risk and/or complications; and
- work, a summary rating incorporating time, and three dimensions reflecting the complexity of work: technical skill and physical effort, mental effort and judgment, and psychological stress or concern about risk.

For each vignette, physicians were asked to provide an estimate of the intratime, in minutes, spent performing a service for the *average* patient. Next, the physicians compared each vignette to the standard vignette and provided values for work and each of the dimensions of work listed above.

The technique of asking physicians to provide ratios of work and its dimensions relative to a standard is called magnitude estimation. This method has been tested for nearly a century and is a widely accepted method of measuring subjective perceptions of stimuli. The stimuli in this study are the vignettes describing physician services. Each respondent was asked to consider a specialty-specific standard vignette with an assigned rating of 100 and produce a ratio that reflected his/her perception of the relationship between the work, or a dimension of work, of the standard vignette and each vignette in that specialty. If, for example, a physician perceived procedure X as being two-and-one-half times the amount of work of the standard procedure, he would provide a rating of 250 for that procedure. Conversely, if he perceived procedure X as being one-third as difficult as the standard, the rating would be 33.

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[24] Pathology was surveyed directly for total work because members of the TCG from this specialty were not able to make clear distinctions between preservice, intraservice and postservice work for the pathology services surveyed.

Comment. Physicians were not asked explicitly if they performed the services described in the vignettes. Participating physicians may have given estimates for vignettes describing procedures or services that they rarely or never perform. During the initial screening of physicians and again during the survey itself, physicians were asked to provide ratings for vignettes if they felt "comfortable" providing a rating. The primary reason physicians were dropped from the eligible sample after the second stage of screening was because they could not provide ratings for 50 percent or more of the vignettes. One problem with this process was the reliance on the physicians to ascertain their level of "comfort" or suitability to rate the various services. While some did disqualify themselves during the screening, it is not known whether the final eligible sample included only physicians qualified to rate the 22 vignettes.[25]

The Commission recommends that Phase II use methods to insure that participants respond only to vignettes that they are qualified to rate. Participating physicians should regularly perform the services that they rate and "regularly" must be clearly defined. Also, the array of vignettes for each specialty should reflect current practice to the extent that an adequate number of responses can be obtained for each vignette.

Data Analysis

This section explains the steps taken to edit and analyze the data once the national survey was completed.

Editing the Data. The national survey generated an array of physicians' estimates for work (and its dimensions) and time for 391 vignettes. Analysis of the data involved several steps. First, the ratings of work and its dimensions were transformed to a common logarithmic scale (base 10). Logarithmic transformation is an accepted practice (perhaps required) when analyzing data obtained through magnitude estimation because this methodology produces skewed distributions of estimates. The transformation achieved approximate normality in the distribution and approximate equality of variance--both required for standard statistical analyses. Both time and work estimates were skewed to the right, an expected result for estimates subject to a natural lower bound, but no upper bound.

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[25] The Society of Thoracic Surgeons asserted that some physicians must have given estimates for services they do not regularly perform since one-half of their eligible sample was known to be general thoracic surgeons while the other half were cardiac surgeons. According to their testimony, few general thoracic surgeons perform cardiothoracic surgical procedures. Approximately eight of their vignettes describe cardiac surgical services and procedures. Of the 101 surgeons surveyed, approximately fifty were cardiac surgeons. Every vignette had more than 60 responses, and most had 80-95, suggesting that some physicians who do not perform a service regularly rated a service.

Once transformed, the data were edited for outlier responses. The outlier policy employed was two-fold. First, responses that were more than three standard deviations from the mean[26] were excluded and treated as missing in an iterative process that was repeated three times. A total of 2,894, or just over 1 percent, of the ratings were excluded using this process. Next, all the responses from individual physicians were excluded and treated as missing if over 50 percent of the physician's ratings were either truly missing (never provided) or were statistical outliers. Data from 48 physicians, or 2 percent of those surveyed, were eliminated in this second step. Fourteen specialties had physicians' data discarded in this step, ranging from 1 in rheumatology, oral and maxillofacial surgery, and allergy and immunology to 11 in obstetrics and gynecology. This two-fold process resulted in some vignettes with a low number of responses. Fourteen vignettes had fewer than 50 responses for the summary rating of work, which was ultimately used to calculate the relative value.

Deletion of outliers resulted in many "missing" data elements in the array of responses for each specialty. A method known as the expectation-maximization algorithm[27] was used to fill in for these missing values. Empty cells in the array of responses that were the result of 1) data truly missing, i.e., the physician was not able to respond, or 2) data set to missing because they were statistical outliers (including all responses of 48 physicians) were replaced with estimated responses based on population parameters of the sample of all non-missing responses.

Comment. The Commission examined 22 vignettes in ten specialties having a low "N" for the work rating. These were identified by looking at an array of vignettes for each specialty and choosing those that had many fewer observations than the remaining vignettes in that specialty. Some specialties' "N"s were close in range and did not warrant careful review. The response rates of these 22 vignettes ranged from 19 percent to 63 percent. The vignettes were considered individually to see if they had certain characteristics in common. For example, did many of them describe new or emerging technology? Did many of them describe a subspecialty service that may not be performed by the majority of physicians in that specialty? Or were many of them within one particular category of service? We found that approximately five described new technology that may not be widely available and seven described services that may not be performed by the majority of physicians in the specialty. No distinct category of service (for example, evaluation and management or invasive services) was represented by these vignettes. The standard errors expressed as a percent of the geometric mean ranged from 7.6 percent to 16.7 percent, all above the average standard error of 7 percent.

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[26] Log transformation necessitated the use of geometric means because arithmetic means are influenced too much by the responses at the high end of the distribution. Geometric means are the antilogarithm of the arithmetic mean of the log values. Each ratio produced via magnitude estimation is given equal weight.

[27] This is a computerized technique that estimates population means and variances for missing values.

The Commission's analysis of vignettes with low response rates, or low N, revealed that several of these vignettes describe services that may be rarely, if ever, performed by many members of the specialty. For example, family practitioners were asked to rate the following: "Abdominal hysterectomy, cancer in situ of cervix, 50 year old." Only 31, or 28 percent, of those surveyed responded. This low response may reflect the number of family practitioners who perform this type of surgery and, if true, was not a good choice for a vignette for this specialty.

The Commission also tested the independence of several physician characteristics and whether a physician was among the 48 physicians whose data were removed. These characteristics were among those gathered during the telephone survey. Three characteristics associated with residency programs in the physician's hospital, year of graduation from medical school (a proxy for age), whether the physician cared for Medicaid patients, and whether the physician had heard of the study prior to the interview were significant variables ($p = .05$ or less) using a chi-square test. The relationship between these characteristics and the category of physician (outlier or non-outlier) was weak in all cases.

The outlier policy was reasonable. The Commission examined the effect of trimming the data on the mean and standard error of intraservice work for all vignettes and found that the effect was minimal. In general, outliers in the high end of the distribution were trimmed as opposed to those in the low end.

Tests of Validity. For this study, validity relates to the question, "Do the estimates of work reflect the actual work of physicians?" Validity is distinctly different from reliability, although the two are often confused. A survey instrument may produce a high level of reliability (responses are reproducible), but may not reflect the truth. Several types of validity can be assessed: face validity, empirical validity, and construct validity. These types of validity and the methods used by Hsiao to test for them are described below.

Face validity is the extent to which the survey instrument measures what it appears to measure according to those qualified to judge it. Face validity was tested several times in the Hsiao study. The results from the national surveys (mean values for work, time and the dimensions of work) and the model of work were presented to the Technical Consulting Groups for review. They were asked to examine the methods and results to see if they appeared reasonable "on the face of it." These tests of face validity by members of the medical profession were viewed as being critical to the outcome of the study for there are few other tests of validity for this type of study (see below).

Empirical validity is tested by examining the relationship between the measured results of one instrument and the measured results of another. In some cases, the validity of the second instrument is undisputed and therefore can be held as a "gold standard." Unfortunately, it was not possible to test empirical validity in the Hsiao study for ratings of work because there are no external, validated sources of this information. The investigators did compare the intratime estimates for surgical procedures to actual recorded operating room times.[28] Hsiao reports that the times reported by the two methods are very close (Hsiao, 1988).

Construct validity involves relating a survey instrument to a theoretical framework "to determine whether the instrument is tied to the concepts and theoretical assumptions that are employed" (Nachmias and Nachmias, 1981). Hsiao tested construct validity through the use of regression analysis that examined the extent to which the four dimensions of work predict the summary value of work and the effect of each independent variable on work. This was performed once using mean data and again using individual physician data. A multiplicative model was developed with work as the dependent variable and the four dimensions of work set as explanatory variables. Regression equations using mean values for each variable produced R-squares close to unity (above .99) for all specialties. This demonstrates that the dimensions of work predict work well. All regression coefficients generated using individual physician ratings were positive and significant beyond .001 indicating that all dimensions of work contributed to the prediction of work.

These coefficients reveal that for every unit change in time, there is a greater unit change in work for medical specialties than surgical specialties. Also, for every unit change in technical skill, there is a greater unit change in work among surgical specialties than medical specialties (Hsiao, 1988).[29]

To test the consistency of an individual physician's ratings of work with the physician's ratings of the dimensions, an analysis of covariance was performed for each specialty. This analysis found that, in general, a physician's ratings of work deviated from the group norm consistent with the deviation of his/her ratings of the five dimensions of work. This analysis gave the investigators confidence that there was consistency or internal construct validity between ratings of work and ratings of the four dimensions of work, and allowed the investigators to use the measure of work, rather than the separate dimensions of work, in the equation for a RVS.

Comment. Validity is difficult to assess for the results of a study for which there are few independent sources of information on what is "true" or "right," particularly for subjective variables like work and its elements. There is no standard or "truth" for estimates of work or intensity of work other than the opinions of physicians who do the work or, perhaps, others who observe them.[30] As described above, Hsiao was limited to testing face validity by asking physicians whether the estimates "look right," and construct validity by testing the model of work.

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[28] Operating room log times from eight hospitals in two regions were used for this comparison.

[29] In a strict sense, these coefficients are not entirely comparable because different specialties were asked to rate different sets of vignettes. The coefficient estimates might have been similar for all specialists if they had all rated the same vignettes, but this was not possible.

If one accepts that physicians are good judges of the work required for their services, the very design of the study suggests that the results, if reliable, are valid: the study relies on the judgments of physicians--not others--about the time and effort (work) required for their services. If it is accepted that physicians "know" how much work is required to provide their services, then their judgments, if measured reliably and without bias, are valid measures of work.

Hsiao reported that the Technical Consulting Group members, in general, found the estimated values of intraservice work and time and the resultant relative values for work to be "reasonable," and testimony to the Commission generally confirmed this. Some specialty societies testified that selected individual relative values were not reasonable upon examination. These relative values resulted from computations using the formula shown earlier in this appendix and were therefore not solely dependent upon physicians' estimates of time and effort. The Commission's modification of the RBRVS formula and its inputs, as well as other methodological aspects of the RBRVS could improve the relative values for which there is a lack of face validity.

Empirical validity of mean intraservice time from the national survey was tested using mean operating room time from operating room logs. Hsiao reports the times for eight of these procedures. The average difference was 12 percent, with five of the eight less than 10 percent. It is unclear if more than eight comparisons were made. If not, there could be further tests of validity for more surgical procedures using operating room log times.

The specialty analysis described above resulted in regression coefficients that were all significant and positive. These results confirm that the model of work has construct validity and that no significant dimensions were excluded from the model of work. In addition, the results show that a physician's overall estimate of work is basically a composite of his/her estimates of the components.

Tests of Reliability. Reliability is the degree to which a survey can be depended upon to produce consistent results upon repeated applications. It is an indication of the extent to which a measure contains variable errors. Variable errors could arise from ambiguous instructions, physician fatigue, technical difficulties, or use of inadequately specified vignettes.

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[30] Some might argue that physicians' charges are a measure of work and therefore comparison of relative work values with current charges is a test of validity. The Commission has concluded that current charges do not reliably reflect the costs of physician services, including work, so it rejects this comparison as a test of validity. Charges do correlate with relative work (Kelly et al., 1988; Etheredge and Dobson, 1988) and may more closely reflect relative work within small families, allowing these charges to be used to extrapolate from the estimated values of work within small groups of closely related services.

The results of the Hsiao survey were tested for reliability using geometric means from the trimmed, edited data set. Three tests of reliability were performed: the standard error of the mean for each vignette, measures of intraclass correlation, and comparison of the results of the two surveys. The last test was performed using data from the pilot survey and the national survey and data from the national survey and a second national survey that concentrated on preservice and postservice time.

All measurement in the social sciences contains some variable error. The average standard error of intraservice work (as a percent of the geometric mean) was about 7 percent, though the standard errors of 49 vignettes, or 13 percent of all vignettes, were greater than 10 percent. Of these 49 vignettes, only one had a standard error greater than 15 percent. A standard error of 7 percent implies that about two-thirds of repeated estimates for the geometric mean of relative work for a vignette would fall within +/- 7 percent of the calculated geometric mean value, and about ninety-five percent within +/- 14 percent of the estimated value. These standard errors are an indication of the degree of variable error, which is inversely related to the degree of reliability.

Two measures of intraclass correlation were calculated. These measures reflect the degree to which the physicians in a specialty agreed with one another in their estimates of relative work for the vignettes surveyed. First, reliability coefficients were calculated for pairs of individual physicians in each specialty. Average pair-wise correlation within each specialty ranged from 0.52 (psychiatry and dermatology) to 0.81 (rheumatology), with sixteen of the eighteen greater than 0.60 and eleven greater than 0.70, indicating generally good agreement among the physicians surveyed.

A measure of the "effective reliability" of mean ratings was calculated using the Spearman-Brown prediction formula. This is like a correlation coefficient for the mean ratings for the whole group of physicians in a specialty. Use of this formula depends upon the assumption that a comparable group of physicians would have similar mean reliability coefficients among themselves and with the actual physician sample. These "group correlation coefficients" were all greater than 0.99. This indicates that each group's relative mean ratings are very reliable.

In another test of the reliability of physicians' responses, the investigators compared the results of the pilot and the national survey. As described earlier, the pilot survey included four specialties and was completely independent of the national survey. The methods used for the two surveys were similar but not identical. Physicians who participated in the pilot were not eligible to participate in the national survey. Of the 52 services compared, the responses of only three were statistically significant for differences at the .05 level. Most ratings of work were within 10 percent of each other with a few beyond 15 percent (Hsiao, 1988).

The same physicians were asked to estimate time(s) for the *same* vignette on two separate occasions, providing an opportunity to examine test-retest reliability. The two responses were generally comparable, though this test-retest approach had two limitations. First, the two surveys were not identically worded and the order of the questions differed. Second, the fact that the same physicians were asked about the same vignettes on two occasions may have had a "learning effect" on the responses and could have introduced bias.

The Commission's analysis of these test-retest reliabilities revealed that physicians' second responses for intraservice time for evaluation and management services averaged 22 percent lower than their first responses. The correlation coefficient between the first and second was .50. For all other services and procedures, the physicians' second responses averaged 5 percent lower than the first, and the correlation coefficient between the two sets of responses was .87. For preservice and postservice times, the differences were greater and the correlation coefficients were lower.

Comment. The Spearman-Brown reliability statistics are very high indicating that two comparable samples of physicians would have mean reliabilities close to one another. Hsiao reports correlation statistics using the mean values of trimmed data. Therefore, one source of variability, individual physician responses around the mean, was removed prior to analysis. Correlation statistics using trimmed and untrimmed data would have provided insight into the effect of trimming outliers.

The results of the reliability tests between the first and second national surveys indicate good reliability for estimates of intraservice time for most services except for evaluation and management services. The lower reliability for evaluation and management services indicates shortcomings in the method of collecting estimates for these services and their incorporation into the relative value scale. Chapter 3 explains the Commission's work to develop relative values for evaluation and management services.

Cross-Specialty Linkage

The relative work estimates resulting from the national survey were specialty-specific because they were based on eighteen different standard vignettes. In essence, an array of the 22 work values for one particular specialty represents a scale of relative values for work. However, the scale for one specialty could not be directly compared with that from another. To allow comparison among the specialties, the investigators identified cross-specialty linkages and created a common scale.

Specialties were linked by services that were considered by cross-specialty panel physicians to require the same or equivalent intraservice work.[31] Linked services were chosen in two stages. Prior to the national survey, TCG panel members were asked to develop vignettes for services delivered by more than one specialty that were likely to be the same or equivalent. In the national survey, several vignettes appeared in more than one specialty. Some of these ultimately became cross-specialty links, while others did not. The cross specialty subpanel considered services from more than one specialty to be the same if they had identical wording, and:

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[31] The researchers chose intraservice work because it was measured directly using magnitude estimation. Total work, including preservice and postservice work is less reliable because of the techniques used to estimate pre- and postservice work.

- The processes of diagnosis and treatment followed by the different specialties were essentially the same.
- The time spent delivering the services were approximately the same.
- The average patient seen by the specialties for the service had roughly the same level of complexity.

An iterative process involving discussion and decisions created a list of vignettes that were treated as "the same." About one-half of the vignettes with the same wording and found in more than one specialty were considered "the same."

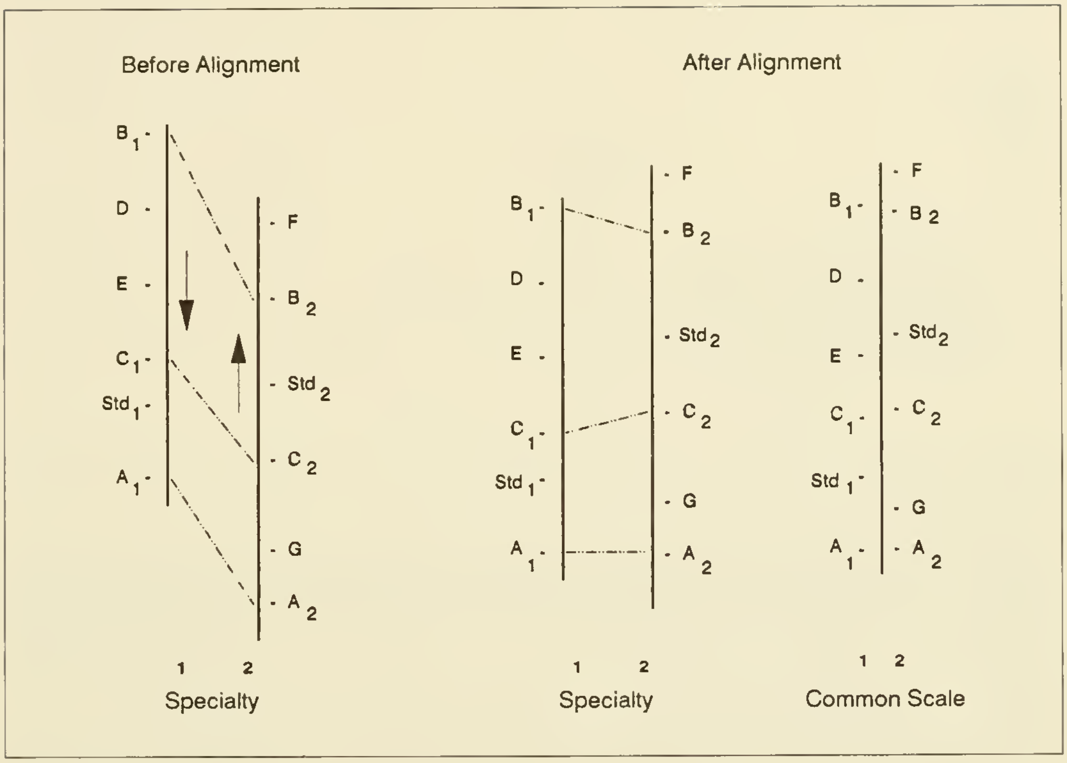
Specialties such as pathology and radiology provide few services that are like those in other specialties so cross-linkage based upon "same" services was difficult. Several other specialties also had few "same" services that met the criteria for cross links. In an effort to circumvent this problem, "equivalent" services were identified. These are services that require similar amounts of time to perform and involve essentially the same level of intensity. Equivalent services were only linked to other services in the same category. For example, evaluation and management services were only linked to other evaluation and management services and invasive procedures only to other invasive procedures.

Before the national survey was conducted, 132 same or equivalent pairs of services were identified using the criteria noted above. Only 103 of these 132 were included in the national survey in an effort to limit the length of the survey instrument. Following the survey, the number of cross-links was reduced to 75. Twenty-eight links were eliminated because the difference in estimated average time between the two linked services exceeded 25 percent.

Additional links were identified following the survey. Cluster analysis of time and work estimates was used to identify pairs of potentially equivalent services and these were presented to panels of physicians. The final outcome of this consultative process was the identification of 82 cross-links: 40 considered "the same" and 42 equivalent. These 82 cross-links included about 130 different services since some services were used in more than one pair.

The number of links per specialty ranged from four to twenty-one, with a mean of nine. The specialties were classified in three categories. Four specialties were described as "broad" specialties: family practice, general surgery, internal medicine and obstetrics and gynecology. These were linked to each other through many pairs of links. Ten specialties were considered "well-linked" and these included allergy and

Figure A-1. Cross-Specialty Linkage



Source: A National Study of Resource-Based Relative Value Scales for Physician Services, Final Report, Figure 3.

immunology, dermatology, oral and maxillofacial surgery, orthopedic surgery, otolaryngology, pediatrics, radiology, rheumatology, thoracic and cardiac surgery, and urology. Finally, four specialties had few links and were considered "insular" specialties. These were anesthesiology, ophthalmology, pathology, and psychiatry. Once the links were specified, the individual specialty scales of intraservice work were linked by a least squares technique to form a single multispecialty scale. Figure A-1 is a simplified version of the linking process for two specialties.

Before alignment, the standard vignettes are matched (Std 1 and Std 2). The first figure shows the standards in alignment and three linking vignettes out of alignment (A, B and C). The next figure shows the two scales sliding up and down so that A, B and C are aligned. Finally, the two scales are combined to place the linked services as close to one another as possible. The creation of a common scale for eighteen specialties was, of course, more complicated.

In general, the investigators were successful in producing a scale with relatively small differences between the linked services, resulting in little additional statistical error.

(The statistical error, or variability--not mistakes--can be seen in the "common scale" in Figure A-1. Note that the linked procedures, A,B and C, are not precisely equal; the least squares method aligns them in a compromise position that is somewhat less precise than an exact match). Once completed, the intraservice work values of 58 percent of the crosslinks differed by less than 10 percent and the average difference was 13 percent. The differences are summarized below (Etheredge and Dobson, 1989):[32]

	# of Services
Less than 5%	23
Between 5% and 10%	23
Between 10% and 15%	13
Between 15% and 20%	10
Greater than 20%	10

Six specialties had average differences between their linked procedures greater than the average of 13 percent.[33]

Comment. Specialty societies criticized the crosslinkage process for the following reasons: 1) small size of the crosslinkage panel (24 physicians); 2) small number of links for some specialties;[34] 3) physicians from one specialty were not equipped to identify "same" and/or equivalent services in specialties other than their own; 4) poor choice of links; and 5) lack of confidence in the precision of the links.

The Commission believes that the linkage procedure was generally successful as shown by the relatively small percent differences between the intraservice work of the linked services. However, the Commission suggests that for the 13 percent of the links with differences exceeding 10 percent, and the specific specialties with average errors greater than the overall average of 13 percent, consensus panels could search for new and better links. Furthermore, we recommend that added attention be given to the cross-specialty linkage process during Phase II including examining links between Phase I and Phase II specialties. Greater effort to identify links prior to the survey phase, and then including all identified links in the survey, may help achieve more cross specialty linkages. The cross specialty panel should include representatives of all specialties that will be studied in Phase II and most of those studied in Phase I. Physicians who are board certified in more than one specialty may be able to develop links between the two (e.g., rheumatology and internal medicine or pathology and internal medicine). Investigation of the relationship between the number of links in a specialty and the reliability of the links would help establish whether insular specialties' relative values can be used with confidence.

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[32] These are close approximations using 79 as the denominator. Three cross links were deleted after the publication of the final report.

[33] These are general surgery, internal medicine, orthopedic surgery, pediatrics, rheumatology, and urology.

[34] Specialties with the lowest number of links were pathology (4), anesthesiology (5), oral and maxillofacial surgery (4), and dermatology (5).

The linkages between services could have been based on total work values, which combines preservice, intraservice, and postservice work. For reasons explained earlier, the investigators believed that only intraservice work could be directly measured and therefore chose this as the basis for the links. When reliable methods of estimating total work from preservice, intraservice and postservice are developed, it would be useful to see comparisons between crosslinkage using intraservice work, and crosslinkage using total work. The next section describes Hsiao's method for obtaining relative values for preservice and postservice work. As we explain, this component of the total work value needs to be improved considerably before crosslinkage could be based on total work.

Estimates for Preservice and Postservice Work

As noted above, direct estimates of total work were not obtained in the national survey. Instead, estimates from two national surveys were used to impute estimates of preservice and postservice work which were then added to intraservice work to equal total work.

The Hsiao methodology for calculating preservice and postservice work relied on many assumptions, multiple categorizations of services, and extrapolated values. Because the methodology is complicated, it is described step by step below:

- Pre- and postservice times were collected from two national surveys. The first survey of 18 specialties asked for time estimates on a subset (55) of the 407 vignettes directly surveyed.[35] Physicians were first asked for estimates of intratime for approximately 22 vignettes, followed by estimates for pre- and postservice times for each of three or four vignettes (a subset of the 22). A second national survey of seven specialties asked for estimates for pre-, intra- and postservice time for 121 services.[36] All 121 of these services were surveyed for intraservice work and time in the first survey, but this represented an expanded number of services for preservice and postservice when compared to the first survey. Respondents were asked to consider each vignette and estimate preservice time, intraservice time, and postservice time in that order.[37]

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[35] Three vignettes were selected from 17 specialties, while four were chosen from OB/GYN.

[36] The second survey had a response rate of 66 percent. The specialties surveyed were: allergy and immunology, general surgery, internal medicine, oral and maxillofacial surgery, orthopedic surgery, pathology, and thoracic surgery. All respondents (367) participated in the first survey. Response rates varied by specialty and ranged from 44 percent (thoracic and cardiovascular surgery) to 91 percent (pathology).

- A typology of preservice and postservice work was developed. Six categories of work and five service settings formed the basis for this. Twelve classes of services emerged from the categories and settings. These classes were intended to be homogenous groups of preservice and postservice work to which the investigators could apply values obtained from the survey.[38]

- In most cases, regression analysis was used to generate estimates of preservice and postservice times for unsurveyed services. The mean pre- and postservice times of the surveyed services were the dependent variables, while the independent variables were the mean intraservice work and time for the same services included in the national survey. This was performed service by service using different regression models for each class of service (described above). The R-squares produced in this analysis ranged from .57 to .74 for preservice time and .44 to .85 for postservice time. Services determined to be "the same" during the cross-specialty linkage process were assigned the same preservice and postservice times based on the direct survey of one of the linked services. If, for example, one of two "same" services was included among those surveyed for preservice and postservice, the estimated times were applied to the unsurveyed service.

- Preservice and postservice work were estimated using the following formula: $WP/P = (TP/P)(W/T)$ where WP/P is the preservice or postservice work, TP/P is the preservice or postservice time, and W/T is the rate of work per unit time. The latter was estimated through inference from intraservice work and time data. This inference rested on two assumptions: 1) preservice and postservice consist essentially of evaluation and management (EM), and that the EM intraservice time and work estimates obtained from the first national survey are representative of preservice and postservice; and 2) W/T for preservice and postservice is correlated positively with W/T of intraservice.

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[37] The formatting of the surveys is relevant because the second survey produced substantially lower estimates of pre- and postservice times than the first survey. This may be attributed to the order in which physicians were asked for estimates.

[38] The classes are: evaluation and management (EM) office, EM hospital, EM nursing home, EM emergency department, imaging, anesthesia, invasive office, invasive surgicenter, invasive hospital, invasive emergency department. Laboratory and pathology were not defined in terms of pre-, intra- and postservice.

- Intraservice W/T for 144 EM services was calculated using mean ratings of intraservice work and time. The W/T values were aggregated to four levels (levels 1, 2, 3, and 4) of EM services and the mean W/T value for each of the four groups was considered typical of four levels of preservice and postservice W/T.[39] Prior to the aggregation, the preservice and postservice times of 17 EM services that were included in the first but not the second survey were adjusted downward by 30 percent. This measure was taken following an analysis of the USC Mendenhall Study and comparison of the time estimates from the first and second surveys. The second survey resulted in substantially lower estimates than the first.

- All of the services surveyed for intraservice work and time were assigned to groups using cluster analysis based on intraservice work. Three broad classes of service emerged: non-invasive services; office, surgical center invasive services, and anesthesia services; and hospital invasive services. Services within each class were clustered again into high, medium and low intraservice work groups resulting in nine groups. The mean W/T value of one of the four levels of EM services (described above) was assigned to the preservice and postservice periods of each of the nine intraservice work groups.[40]

- In some instances, clinical judgment replaced statistical methods in assigning W/T values to the nine categories.

Mean W/T for each of the four levels of EM services defined through the cluster analysis were 2.16, 2.80, 3.44, and 4.85 respectively for levels 1 through 4. Results of preservice and postservice work, as a percent of total work for six categories of services, are presented below:

EM	34%
Imaging	29%
Anesthesia	47%
Invasive	
Office	39%
Surgicenter	44%
Hospital	46%

Comment. The reliability and validity of the imputed estimates of preservice and postservice time are uncertain due to the multiple assumptions and extrapolations that were applied to produce these values. Most specialty societies criticized this part of the project for similar reasons.

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[39] Hsiao reports that they examined the heterogeneity of the four groups and found that they were "sufficient." No data are provided to support this assertion.

[40] High, medium and low correspond to levels 3, 2 and 1 in all classes except hospital invasive. Due to the perceived greater severity of hospitalized patients, the researchers assigned high, medium and low to levels 4, 3 and 2 in the postservice period.

The results, though of uncertain accuracy, suggest that preservice and postservice work are significant components of total work. Therefore, it is essential that the final RBRVS capture the preservice and postservice work reliably. The Commission recommends the following:

- Phase II should include the collection and analysis of preservice and postservice data using an improved methodology that relies upon direct estimates of work. Extrapolations and assumptions about the relationship of preservice and postservice work to intraservice work should be avoided when possible.
- Reliable estimates of preservice and postservice work must be developed for the services and procedures surveyed in Phase I.
- Methods for directly estimating total work should be investigated. The Commission's 1989 log-diary survey of physicians will provide information regarding physicians' ability to estimate total work for evaluation and management services.[41]

Extrapolation of Work Values from Surveyed Services to Unsurveyed Services

Total work estimates were available for approximately 400 services, or fewer than 10 percent of the over 7,000 CPT codes that compose the universe of physicians' services. The relevant universe for this study is about 6,000 because it encompasses only codes used in eighteen specialties.[42] Therefore, a method was required to extrapolate values for all 6,000 services from the 400 that were estimated directly.

Limitations in available data precluded the use of time or intensity as a basis for extrapolating surveyed services to unsurveyed services. Instead, charge data was used as a proxy for resource inputs. Though it may appear inconsistent to base relative values on charges, the investigators asserted that charges can be used as measures of relative work within small, relatively homogenous groups, or "families" of services. They provided evidence that charge data correlates better with estimated relative work for smaller groups of services than for all services together (see below).

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[41] See Chapter 3 for a description of this survey.

[42] As was noted earlier, the services described in the vignettes were selected, in part, because they are frequently performed and because they account for a large fraction of Medicare expenditures. For each of the four categories of service--EM, invasive, laboratory, and imaging--the surveyed services represent approximately 40 percent of Medicare allowed charges.

Families of services were created using the existing hierarchy of the CPT coding system. Evaluation and management services were sorted first according to setting (office, hospital, etc.), then by type of service (consult, visit), and finally by type of patient (new vs. established). Invasive procedures were sorted first by body system, then by anatomic region, and finally by type of procedure. Laboratory services were grouped exclusively by type of service and imaging procedures were sorted first by body system, then anatomic region, and finally type of procedure. The families created for three of the four categories of services (invasive, laboratory and imaging) were not specialty-specific. The investigators reasoned that survey data did not support differences in TW values for the same service performed by different specialties for services other than evaluation and management.

Surveyed services were linked to the appropriate family and within a family, labeled as a benchmark.[43] Once labeled, the following formula was applied to obtain extrapolated values:

> Extrapolated value for unsurveyed service = TW value for benchmark service X (mean charge for unsurveyed service/mean charge for benchmark service).

Extrapolated values were created for approximately 1,400 CPT codes, or fewer than one-third of the universe. These 1,400 codes account for approximately 80 percent of Medicare allowed charges.

The codes for which no extrapolated values were calculated were those not easily related to a benchmark service. The Medicare allowed charges for these codes were spread over the four categories of service quite differently. Unrelated services in each of the four categories accounted for the following percentages:

EM	9%
imaging	13%
laboratory	51%[44]
invasive	28%

Approximately 2,500 "unrelated" codes are infrequently used for billing (less than 200/year in 1986). Most of the remaining unrelated codes are those that are usually associated with orthopedic surgery and general surgery. Because these two specialties use many more CPT codes than other specialties, extrapolation was more difficult using only 22 surveyed services per specialty. Phase II of the study will collect additional data in these two specialties in order to strengthen their extrapolated values.

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[43] Some families did not include a surveyed service and were therefore not used in the extrapolation. Other families included more than one and were reduced into smaller families. The researchers report that this further subdivision, based on anatomic criteria and/or type of service, achieved greater homogeneity.

[44] Many of these laboratory codes are included in a clinical laboratory fee schedule that was established in 1984.

The researchers investigated their extrapolation methodology in several ways. First they used regression techniques to determine how well mean charges explain the variation in total work. This produced an R-square of .86 for logged values (logged charges and logged work). When they examined the differences between the actual TW value and the predicted TW value for all four categories of services, systematic differences were demonstrated. In other words, the difference between actual and predicted TW for one category was significantly different than for another. This is expected if charges reflect costs more accurately within smaller groups of services, but there is systematic "misalignment" of groups of charges. Regression using dummy variables to simulate the use of small, homogenous families produced a higher R-square of .93.[45] These results demonstrate that charges parallel estimated values for work better for smaller families than for larger families. Thus, the researchers concluded that the methodology was valid for extrapolating TW values.

A second assessment of the overall methodology examined the results of extrapolations within a family using two different benchmarks. During the creation of families, if more than one surveyed service was found to be linked to one family, the family was reduced to smaller families. Ultimately, the smallest families were used in the extrapolations. The researchers used this as an opportunity to test their methodology. In five instances, they examined the extrapolated values within a family using two different benchmarks. They observed that when two benchmarks within a family both correspond closely to mean charges, the extrapolated values imputed from each benchmark do not differ substantially. Conversely, if two benchmarks do not correspond closely with mean charges, the imputed extrapolations for the other services within the family can vary considerably. In other words, charges were not closely related to work in some of these "extended families." The investigators concluded that some families should be scrutinized closely for congruence between total work and mean charges (Hsiao, 1988).

Finally, a subgroup of physicians from the TCG and physicians unfamiliar with the study was convened to review the results of the extrapolation. The panelists were asked to review the extrapolated values and identify services that were outliers (defined as more than 40 percent in error) and services that were questionable (20 percent or more error). They examined each RV in view of the following: rank order of services within each specialty, comparison of services with similar RVs within a specialty, comparison of families within a specialty incrementally from low RVs to high RVs, and comparison of some representative services across specialties. Approximately 15 percent of all extrapolated values were designated as outliers as the result of this consultative process. In many cases, inaccurate charge data was identified as the source of the problem. Some of these inaccuracies arose from charges for global surgical services, which are known to be a source of billing discrepancies across carrier areas.

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[45] The resulting F statistic was statistically significant at .01.

Following an iterative review by the physician panel, all services were placed in one of four groups: 1) services with reasonable RVs; 2) services with unreasonable RVs (eventually deleted); 3) services with questionable RVs that require further analysis; and 4) services with reasonable RVs judged to be obsolete. A supplemental report released two months after the Phase I final report provided an update on the status of 228 "unresolved" services in the questionable category. The analysis of unresolved services demonstrated multiple problems with the CPT coding system and the mapping of these codes to surveyed vignettes. Other identified problems with the extrapolation methodology include errors in the charge data, families that were too large, and services performed primarily by non-physicians. Many corrective steps were taken by the researchers to address each of these problem areas. This resulted in the reduction of unresolved services from 228 to 117. Relative values for the 117 services were not reported and are not included in the final listing of RBRVs.[46]

In their report released in September, the researchers reported difficulty extrapolating surveyed EM services to unsurveyed EM services. Contributing to these difficulties is the ambiguity of the descriptions of many CPT codes, the differences in the application of EM codes across specialties, and limitations of charge data for EM services. In addition, TCG panel members had difficulty mapping many EM vignettes to CPT codes following the survey.

The results of the extrapolation included rank order anomalies for levels of evaluation and management services as well as many relative values that were considered unreasonable by members of the technical consulting groups.[47] In their supplemental report, the investigators concluded that they were unable to extrapolate to evaluation and management services using this methodology. The report describes a strong relationship between intraservice work and time, and time as a predictor of work. After describing several options for the development of relative values for evaluation and management services, the authors recommend use of the current CPT system with the addition of a time descriptor.

Comment. The two tests of validity described above suggest that the basic extrapolation methodology is probably sound and is likely to be able to develop a RBRVS for all physician services with the exception of evaluation and management services. While the Commission accepts Hsiao's method of using charge data as the basis for extrapolation, it does not believe that this is ideal. The results of the regressions and the analysis using two benchmarks in five families provides some degree of assurance that the charge data will allow extrapolation within most families.

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[46] Services remain unresolved for the following reasons: deficient charge data (47 percent), coding problems (20 percent), and other (33 percent).

[47] An example of a rank order anomaly is an extrapolated RV for a comprehensive office visit for a new patient that is lower than the RV for an established patient.

The Commission has identified several shortcomings in the application of the extrapolation methodology. These are:

- Preservice and postservice work values were of uncertain accuracy, leading to unreliable relative total work values.
- Too few services were estimated to cover the breadth of work in some specialties, leading to few benchmarks for those specialties. For example, in some specialties 22 vignettes were used to extrapolate to over 1,000 CPT codes, while in other specialties 22 vignettes were used to extrapolate to far fewer codes.
- Some of the families were too large and heterogeneous. Some families were so large that the services within them were not closely related to each other. The charge relationships within such large families may not correspond to relative work.
- The charge data were not edited well and contained many anomalous values.

It is clear that each of these deficiencies must be corrected if extrapolation is to produce accurate relative values. Once these problems are corrected, new extrapolations for specialties from Phase I must be made. The Commission recommends the following:

- The investigators should evaluate their method of generating families to determine whether the families are small, clearly defined, and homogeneous.
- To extrapolate within families, recent and high quality data on current physician charges must be obtained.
- Further comparisons should be made among the extrapolated values within a family using different benchmarks. A variation of this approach might include constructing large, somewhat homogenous families having several benchmarks. Extrapolated values could be calculated using each of the benchmarks. The mean of these values could then be assigned to the service.

Assuming that the validity of the methodology and the general accuracy of future extrapolated values are demonstrated, there will still be substantial variation from the "true" values for a small number of individual estimates. These would arise if there were statistical variability in estimated relative values used to extrapolate or anomalies in the charge data used. If the methodology is shown to be generally sound, the Commission intends to conduct a consensus process to identify and correct inaccurate individual extrapolated values.

PRACTICE COST DIFFERENCES AMONG SPECIALISTS

A practice cost index was an integral part of the formula for each RBRV: RBRV = (TW) (1 + RPC) (1 + AST). RPC is a scale of the relative practice costs of physicians in different specialities and represents the second largest resource input (after work) to physicians' services.

The researchers defined practice costs as the costs of medical practice exclusive of the physician's own time and effort. Contributing to the costs are expenses for equipment, rent, and salaries for ancillary personnel. Practice costs may vary significantly from region to region because of the different prices physicians may have to pay to purchase or hire these nonphysician inputs. In addition, practice setting can influence overhead costs. Physicians in private practice have greater overhead, while many hospital-based physicians, such as pathologists, have fewer practice expenses. In summary, practice costs can vary widely by specialty, geographic area, and service.

Within each specialty, practice cost was allocated to each service in proportion to the total work (TW) value of the service, hence the multiplicative formula. This method had two implications. First, it was assumed that services requiring greater physician input (work) also require greater non-physician input (equipment, ancillary personnel, etc). Second it, in effect, created a specialty differential.

Hsiao developed a practice cost index that calculated practice costs as a percent of physician gross revenue. Specifically, the series of formulas are as follows:

$$GRs = NRs + PCs$$

where gross revenue for specialty s is expressed as the sum of net revenue and practice costs. A multiplicative relationship was added to factor in a "markup" on net revenue:

$$GRs = NRs + PCFs$$

where PCF is the practice cost multiplied by the markup factor, F. Net revenue was calculated as the sum of the products of the quantity of each service provided by the physician, the TW of that service and a conversion factor that converts TW to monetary terms. The PCF for each specialty was calculated using the following formula:

$$PCFs = 1 / ((1 - (PRACTICE\ COSTS\ s / GROSS\ REVENUE\ s))$$

The practice cost index was created by standardizing the PCF for each specialty to a single specialty, general surgery:

PRACTICE COST INDEX = PCFs/ PCF GENERAL SURGERY

Standardizing the practice costs of each specialty to one specialty was necessary to develop a relative practice cost index that could be used to compare the 18 specialties. The choice of specialty was arbitrary.

The (1 + RPC) that appears in the RBRV equation is the result of this final equation. Relative practice costs are derived by simply subtracting 1 from the result. For example, Hsiao reports a relative practice cost index for pathology of -0.23, which is interpreted as 23 percent lower than general surgery, the standard specialty. Overall, the relative practice cost factors for 18 specialties ranged from -0.33 to +0.24 for psychiatry and orthopedic surgery respectively.

The primary source of data was the 1983 Physician Practice Cost and Income Survey (PPCIS), conducted by the National Opinion Research Center for the Health Care Financing Administration.[48] A supplemental survey was conducted for maxillofacial surgery because this specialty was not included in the PPCIS. In addition, the AMA's *Socioeconomic Characteristics of Medical Practice, 1984* was used as a source of data for the residual practice costs category not covered in the PPCIS. The estimates for residual practice costs were added to PPCIS practice cost data to calculate total expenses.

The data that were used to calculate the practice cost index were inadequate in several ways and the investigators noted these problems in their final report. One obvious shortcoming was the lack of timeliness of the PPCIS. To determine the magnitude of this problem, the 1983 PPCIS data was compared to 1986 AMA Annual Socioeconomic Monitoring System Survey (SMS) data. The investigators found that among five specialties surveyed by both the SMS and the PPCIS, practice costs as a percent of gross revenue increased by 4.7 percent, and the growth of practice cost expense as a percent of total expense was fairly constant across specialties. An exception to this was the rapid increase in the cost of malpractice insurance premiums for which an adjustment was made.[49]

The second shortcoming of the PPCIS was that it contained missing values for certain cost variables for approximately 1,000 physicians. In these instances, physicians responded to one part of a survey question, but not another. Rather than decrease the sample size by 1,000, missing values were imputed using regression analysis. Imputations were made after the data had been trimmed and edited. The results of eight regression equations are not reported by the investigators.

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[48] The PPCIS gathered data on practice patterns, characteristics, and gross and net revenue from 4,729 physicians. Of these respondents, 2,525 practiced in one of the 18 specialties studied by Hsiao. Sample size among the specialties varied widely and five specialties had samples lower than 50.

[49] The PPCIS data for malpractice premium costs were adjusted upward to reflect the percent change noted between 1983 and 1986. Data from the SMS and The Medical Protective Company were used.

Comment. The Commission believes that there are several fundamental problems with Hsiao's approach to practice costs and recommends an alternative. Chapter 5 is devoted to the subject of practice costs and explains in detail why an alternate approach is recommended. The shortcomings are summarized as follows:

- Hsiao's multiplicative formula for calculating the RBRV compounds practice costs and the opportunity cost of specialty training (AST). It is inappropriate that the amount paid for AST should depend on the value of the RPC amount.

- Total work and practice costs should vary independently since practice costs do not consistently accrue at a rate proportional to total work. An inverse relationship may exist in some equipment-intensive services.

- Hsiao argued that physicians commonly pass on cost increases for some services to all services which is, in effect, cross-subsidization.

- The Hsiao approach used current ratios of costs to revenues. This assumes that current expenditures within each specialty are at an appropriate level-- a debatable assumption and one that could sustain distortions in the current payment system.

The Commission has developed an additive formula for incorporating practice costs into the RVS that allows for overhead to be calculated independently from physician work.

AMORTIZED COSTS OF SPECIALTY TRAINING

The opportunity cost of specialty training is the final element included in the RBRVS equation. This cost (identified as AST in the RBRVS equation) was intended to compensate for the years a physician may spend in specialty training. Hsiao reports that the "opportunity costs of a year of training can be approximated by the difference between a resident's salary and the income the resident could earn in practice."

Specialists who participated in the Harvard study underwent varying levels of training and rated work that reflected that training. In the final report, Hsiao argues that these work ratings also reflect productivity achieved through specialty training and that work values do not adequately compensate physicians for the opportunity costs of additional years of training.

To estimate the AST, the investigators first calculated opportunity costs per year by subtracting the salary of a resident from the salary of a practicing (non-resident) physician of similar age. Next, they summed the annual opportunity cost for a specialty over the duration of the residency and then amortized the total opportunity cost over the working lifetime of the physician. This foregone income was compensated as a percent increase in net income.

The equation used to calculate a specialty-specific, per annum opportunity cost payment included annual growth rate of physicians' net income, mean net income for all physicians in the specialty, and the estimated year of retirement for the specialty. Total work ratings for all services within the specialty were adjusted by the percent markup of net income, based on this per annum cost.

General surgery was again used as the standard specialty upon which the index was based. Relative to general surgery, opportunity costs of other specialties ranged from 5 percent greater to 1 percent lower. Opportunity costs as a percent of net income range from 2.8 percent/year (internal medicine) to 9.2 percent/year (thoracic surgery).

Various sources of data were used in these calculations. Data on the length of residency training was obtained from specialty societies. The AMA provided data on career spans, salaries of residents, and physician net incomes. Income data were supplemented with data from the *Medical Economics* national survey of physicians. A 9 percent interest rate and a 6 percent average increase per year in physicians' salaries were assumed.

Comment. The Commission recommends that the relative value formula exclude the opportunity cost of specialty training for two reasons. First, the AST may "double count" the value of specialty training. Total work estimates, provided by the specialists, capture the knowledge and skill commensurate with specialized training. Second, the incorporation of AST conflicts with the principle that physicians should be paid the same when the service is the same.

SUMMARY

The Commission has identified several methodological areas where additional work is necessary before it can recommend incorporating the Hsiao relative values for physicians' work into the Medicare Fee Schedule. Each of these areas is currently being addressed, or will be in the future either by Hsiao in Phase II of the study or by the Commission. In summary, the Commission recommends:

- improvements in the method for estimating preservice and postservice work;

- improvements in the estimates of work for evaluation and management services including reforms in the CPT coding for these services;

- improvements in the methods of calculating practice costs and incorporating these into the relative value formula; and

- improvements in the extrapolated values through use of better data and refinements of the families.

Chapters 1 through 6 present these recommendations and describe the work in progress to construct the Medicare Fee Schedule.

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APPENDIX B

ANALYSIS OF WORK AND TIME IN PHASE I OF THE HSIAO STUDY

Chapter 3 summarizes the Commission's analysis of the relationship between work and time in Phase I of the Hsiao Study.[1] This appendix presents the methods, analysis, and results in more detail.

METHODS

The Commission's analysis of the relationship between work and time largely parallels that of the Hsiao study. But it differs in several important ways. First, the Commission's analysis is based on individual physician estimates of work and time, as well as the mean values of work and time for each vignette. This broader database permits a more thorough examination of the variables that influence the relationship between work and time. An analysis limited to average values provides too few observations to study many of these variables well. Individual physician estimates are also helpful in identifying physician-specific effects, such as consistent differences in work/time ratios for all EM vignettes, that may reflect physicians who provide services differently (for example, with more or less efficiency).

The Commission's analysis also uses a different method to correct for response error. Hsiao and his colleagues report the average value of work or time for each vignette. This approach controls for measurement error but also masks any variance that may be due to differences in actual practice. The Commission's approach attempts to correct for response error by assessing the reliability of estimates of time.

Some physicians in the Hsiao study were asked to estimate time(s) for the same vignette on two separate occasions.[2] The correlation between the two estimates of time is a measure of the intrarater reliability of these estimates.[3] For EM vignettes, the reliabilities for estimates of time were calculated to be 50 percent for intraservice time, 57 percent for preservice time, and 37 percent for postservice time.[4] For non-EM services, the reliability for estimates of intraservice time was higher (87 percent). This may be because non-EM vignettes, which specified the services provided, were interpreted more uniformly by each physician on the two occasions.

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[1] Susan Marquis, Ph.D., Senior Economist at the Rand Corporation, worked with the Commission on this analysis.

[2] In the Hsiao study, 293 physicians in six specialties (allergy and immunology, general surgery, internal medicine, maxillofacial surgery, orthopedic surgery, and thoracic surgery) twice estimated intraservice time for 49 EM vignettes. In addition, 107 physicians in two specialties (allergy and immunology and internal medicine) twice estimated preservice time and postservice time for six EM vignettes (all established patient office visits).

[3] Reliability = (true variance) / (response variance).

The Commission's analysis used a different method to calculate total work, and this difference had the largest effect on the results. In the Hsiao study, physicians did not give direct estimates of total work for each EM vignette. Instead, all physicians were surveyed about intraservice work and intraservice time, and some were also surveyed about pre- and postservice time.

Hsiao and his colleagues calculated total work with a complex method that relied on multiple categorizations of services and extrapolated values (Dunn et al., 1988). First, average values for pre- and postservice time were correlated with average values for intraservice work and intraservice time for the each of the vignettes that were surveyed directly. Regressions were then used to predict pre- and postservice time from estimates of intraservice work for vignettes that were not surveyed for pre- and postservice time directly. One of four levels of work per unit time (developed from intraservice time and intraservice work estimates for EM services) was then assigned to each vignette to convert pre- and postservice time to pre- and postservice work. This method was based on the assumption that pre- and postservice time is correlated with intraservice work.

The Commission calculated total work using a method that does not rely on categorizations of services or extrapolations. For a database, the Commission used a subset of 1013 physicians in 13 specialties who were surveyed directly about pre-, intra- and postservice time for 66 EM vignettes[5]. Total work was calculated for each physician from his/her estimates of time and intraservice work for each vignette:

$$\textit{Total Work} = (\textit{Intra-Time} + \textit{Pre-Time} + \textit{Post-Time}) \times (\textit{Intra-Work}/\textit{Intra-Time})$$

This method for calculating total work assumes that effort is constant for the pre-, intra- and postservice components of each EM service. This assumption is consistent with the findings of Hsiao and his colleagues for EM services in the aggregate (Braun et al., 1988).[6]

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[4] The reliability for the natural log of intraservice time was calculated to be 64 percent. This value is used in the work/time relationship described below.

[5] This population is not fully representative of the population of all EM vignettes in the study. However, the difference is probably small since the (intraservice time)/(intraservice work) relationship is very similar in both populations (see below).

[6] Hsiao and his colleagues reported that (preservice time + postservice time) / (total time) is the same as (preservice work + postservice work) / (total work) for EM services in the aggregate. This implies that,on average, the work/time ratio (effort) is similar across the entire EM service. There is no objective data with which to validate this assumption.

In the Hsiao study, physicians were surveyed about some vignettes twice and others only once. For the sake of consistency, the Commission used only first responses in its calculations of total work. First responses tended to be higher than second responses, and Hsiao and his colleagues lowered the estimates of preservice time and postservice time from the first survey by 30 percent to make them consistent with responses in the second survey. Thus, pre- and postservice time is a higher proportion of total time in the Commission's analysis (50 percent) than in Hsiao's (35 percent).[7]

It is important to point out that although the methods used by the Commission and the Hsiao researchers to calculate total work are different, neither can be validated with current data. This will require more direct estimates of total work, which will be obtained in the Commission's Visit Survey and are anticipated in Phase II of the Hsiao study.

ANALYSIS

The Commission's analysis used multiple regression to develop a model that would best predict individual physicians' estimates of work from their estimates of time. Untrimmed individual physician response data from two populations was used to estimate the relationships: (1) the population of 1738 physicians in 16 specialties who were asked to estimate intraservice time and intraservice work for 159 EM vignettes; and (2) the population of 1013 physicians in 13 specialties who were asked to estimate pre-, intra-, and postservice time for 66 EM vignettes.[8] The relationship between intraservice work and intraservice time was estimated using data from both populations and was shown to be similar. The relationship between total work and intraservice time was estimated using data from the second population.

Model

The following model, which relates the natural log (ln) of work to the natural log of time, provides the best prediction for both relationships:[9]

$$\ln work = a + b(\ln time) + cX + d(\ln time)X$$

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[7] We do not know why physicians differed in their two estimates of time for the same vignette nor which of these estimates is more valid. This is because no database is currently available to validate estimates of pre- or postservice time or to determine the "true" relationship between intraservice time and pre- and postservice time.

[8] Specialties that use specialty-specific visit codes (psychiatry and ophthalmology,) were excluded from the latter population.

[9] It is unlikely that outliers were driving the relationships, since the best-fit curves were unchanged when the points most likely to have the greatest influence on the relationship were removed. The curves that were generated using 3/4 of the data also gave the best-fit for the remaining 1/4 of the data. The natural log of time was corrected for response error using the intraservice ln time reliability of 64 percent.

Table B-1. Regression of Intraservice Work on Intraservice Time for EM Services

VARIABLE	COEFFICIENT	T STATISTIC
Intercept	1.45	20.8
Ln time	0.86	36.0
Site Indicators		
Hospital	0.16	6.0
SNF	0.10	2.9
Consultation	0.18	7.5
Type of Patient		
New Patient	0.18	8.5

Source: PPRC analysis of data from Phase I of the Hsiao study.

Note: Omitted site indicator is office; omitted type of patient is established.

In this equation, **X** is a vector of specialty and classification variables (site, referral status, new/established patient), **c** is a vector of coefficients representing the main effects of these variables, and **d** is a vector of coefficients representing the effects of the interactions between ln time and these variables. This model gives a much better fit than models in which work depends linearly on time, on the reciprocal of time, or on a second degree polynomial in time.

The regression coefficients for the relationship between intraservice work and intraservice time are presented in Table B-1. The regression coefficients for the relationship between total work and intraservice time are presented in Table B-2. These relationships are presented graphically in Figures 3-3 and 3-4 in Chapter 3.

These relationships are nonlinear and suggest that the average intensity (work per unit of patient contact time) of a shorter visit is greater than for a longer visit. This implies that a fraction of the resource costs (time and effort) associated with each patient visit is unrelated to the duration of the face-to-face encounter. In other words, some proportion of the resource costs are "fixed." Since the slope is flatter for the relationship describing total work than intraservice work, these fixed resource costs appear to involve pre- and postservice work as well as intraservice work.

Table B-2. Regression of Total Work on Intraservice Time for EM Services

VARIABLE	COEFFICIENT	T STATISTIC
Intercept	2.71	16.5
Ln time	0.62	11.6
Site Indicators		
Hospital	1.31	5.4
SNF	0.36	0.8
Consultation	1.23	2.1
Type of Patient		
New Patient	0.38	8.5
Site/Ln Time Interactions		
Hospital	-0.36	-5.2
SNF	0.026	0.2
Consultation	-0.26	-1.7

Source: PPRC analysis of data from Phase I of the Hsiao study.

Note: Omitted site indicator is office; omitted type of patient is established.

Specialty

Specialty and visit classification variables (site of service, referral status, and new/established patient) have a statistically significant effect on the relationship between work and time in this model. But the effects are not all of similar magnitude. To assess the magnitude of the specialty effect, we compared the prediction of intraservice work for each specialty for visits involving 15, 30, and 60 minutes (intraservice time) with two models: one that is specialty-specific and one that is not. We also compared the predictions of total work.

Two specialties, dermatology and maxillofacial surgery, did not fit the generic curves well. Testimony presented to the Commission suggests that the EM vignettes used to survey these specialties may not have been representative of their universe of visit and consultation services.

For the remaining 14 specialties surveyed for intraservice work in the Hsiao study, the predicted values of intraservice work were not very different with the two models. The mean absolute differences in predicted work were 12 percent for the

15 minute visit, 9 percent for the 30 minute visit and 10 percent for the 60 minute visit.[10]

There were fewer specialties and less data with which to examine the two models in the total work relationship. For the nine specialties that could be examined, there was little difference in the predicted values of total work for the shorter and intermediate length visits: the mean absolute differences were 10 percent for the 15 minute visit and 11 percent for the 30 minute visit. For the 60 minute visit, however, the mean absolute difference was 22 percent. These results suggest that, for the most part, physicians in different specialties estimate work similarly for visits involving the same amount of time.

These preliminary results suggest that specialty differentials would probably not substantially increase the accuracy of an EM coding system that would incorporate time. The analysis will be repeated, however, with better estimates of total work and data from more specialties, when the results of Phase II of the Hsiao study and the Commission's Visit Survey are available. At that time, we will be able to judge better the contribution that specialty differentials could make in explaining variation in the work/time relationship for different types of visits.

Visit Classification Variables

Visit classification variables (type of patient, site of service, referral status) have a substantial effect on the relationship between work and time in a non-specialty-specific model. The type of patient influences the intercept rather than the slope of the curve. A visit with a new patient is associated with 18 percent more intraservice work and 38 percent more total work than a visit with an established patient at an identical site for the same amount of time. This suggests that a new patient visit is associated with more work per unit time while the patient is being seen, such as the additional effort involved in evaluating one or more new problems. There is also more work per unit time before and after the face-to-face encounter, such as the additional effort involved in reviewing old records and documenting the differential diagnosis and therapeutic plan in the chart.

Site and referral status also influence the intercept of the curve relating intraservice time and intraservice work.[11] When compared to an office visit with an established patient for a particular length of time, a visit in a skilled nursing facility is associated with 10 percent more intraservice work, a visit in a hospital is associated with 16 percent more intraservice work, a visit in an emergency room is associated with 43 percent more intraservice work, and a consultation is associated with 18 percent more intraservice work. The additional work involved in seeing a new patient would be added to these effects.

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[10] These differences are small in magnitude, especially when compared to the standard error for point predictions with the model (twice the standard error = 5 percent).

[11] Allowing the slope to vary by these variables does not appreciably explain more of the variance in intraservice work.

Site and referral status have an effect on both the intercept and the slope of the curve relating intraservice time and total work (Figure 3-5 in Chapter 3). This means that these variables influence both the work per unit time and the proportion of fixed resource costs involved in visits. For example, the total work per unit of patient contact time is consistently greater for nursing home visits than for office visits. This difference can be accounted for by the multiple and complex medical problems that are characteristic of the elderly nursing home population. On the other hand, the total work per unit of patient contact time is not always greater for hospital visits than for office visits. Unlike office visits, much of the work involved in hospital visits is unrelated to the duration of the patient encounter (for example, dictating the hospital note, writing orders, discussing the patient with hospital staff and consultants). As a result, the difference in total work for a short and long encounter is not as great in the hospital as in the office.

The magnitude and clinical relevance of these effects suggests that it would be important to retain current CPT visit classification variables in an EM coding system that would incorporate time. A large part of the variance in work for EM services can be accounted for by time and these variables. Together, they explain 68 percent of the variance in individual physician estimates of ln intraservice work.[12] [13] If total work values were assigned to visits using class-specific relationships between work and time, differences in effort related to the type of patient, site of service, and/or referral status would be reflected in different fees for different types of visits that involve the same amount of time.

Future Work

This analysis is based on data from Phase I of the Hsiao study, and is a preliminary indication of the relationship between work and time that is likely to result from the completed study. When Phase II of the Hsiao study and the Commission's Visit Survey is completed, we expect to have more data about different types of visits and more accurate estimates of total work. Thus, when the analysis is repeated, the relationship between total work and intraservice time may change.

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[12] We should point out that time, in conjunction with CPT classification variables, explains 95 percent of the variance in mean values of ln intraservice work for EM vignettes. However, this number may overestimate the fraction of the variance in actual physician work explained by time since there is less variance to explain in mean ln work than ln work.

[13] Multivariate analysis also shows that time explains the variance in work twice as well as current CPT levels of service.

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APPENDIX C

PPRC SURGICAL GLOBAL SERVICE POLICY

SURGICAL CONSULTATION

The principal surgeon's evaluation of a patient for a new surgical problem is *not included* in the global service. The value of the consultation will not be included in the global fee and the surgeon will be allowed to bill for this service separately.

PREOPERATIVE VISITS

All preoperative *hospital* visits provided by the principal surgeon on the *day before and day of* surgery (with the exception of the consultation) are included in the global service. Only the value of these preoperative visits will be included in the global fee. The surgeon will be allowed to bill for all other preoperative visits separately.

POSTOPERATIVE VISITS

All *institutional and outpatient* visits provided by the principal surgeon during the *90 days* following the primary operation are included in the global service *unless* the visit is for a problem unrelated to the diagnosis for which surgery is performed. Postoperative visits for complications of surgery are *included* in the global service.

Specialty societies will be asked to identify the *number, site, duration, and intensity* of visits typically provided by the principal surgeon in the 90 days following surgery for each operation. The values of these visits will be included in each global fee.

NONOPERATIVE PROCEDURES

All technical procedures not usually performed at the time of surgery are *excluded* from the global service. The only exceptions to this rule are dressing changes, local incisional care, and removal of operative packs; removal of cutaneous sutures, staples, lines, wires, tubes, drains, casts, and splints; insertion, irrigation and removal of urinary catheters, routine peripheral intravenous lines, and nasogastric and rectal tubes; and change and removal of tracheostomy tubes. The value of all other technical procedures will not be included in the global fee. The surgeon will be allowed to bill for additional indicated procedures separately.

INTRAOPERATIVE SERVICES

All intraoperative services performed by the principal surgeon that are a *usual and necessary* part of the primary operation are included in the global service. Unusual services related to the primary operation, concurrent operations (operations performed at the same time as the primary operation but for another diagnosis), and reoperations for complications are *excluded*. The value of these additional intraoperative services will not be included in the global fee; if indicated and performed, the surgeon will be allowed to bill for them separately.

Additional operations performed at the time of the primary operation but not encompassed by the CPT code for the primary operation will be reimbursed at rates *less* than their full global fee. The reduction in fee will reflect the savings in resource costs that is achieved when two operations are performed through the same incision or at the same time and when postoperative care is provided concurrently.

Staged operations and reoperations for complications performed within 90 days of the primary operation will be reimbursed at rates *less* than the full global fee to reflect the savings in resource costs achieved when postoperative care is provided concurrently.

SHARED AND CONCURRENT CARE

Policies for shared and concurrent care are needed to account for circumstances when physicians other than the principal surgeon participate in the care of a surgical patient. These policies allow the global payment to be divided among two physicians who jointly provide a surgical global service, and they allow payment to a physician other than the principal surgeon who performs a necessary consultation. These policies are not intended to encourage or condone "fee-splitting."

Shared Care. When a physician other than the principal surgeon provides a service *included* in the global package, the principal surgeon's fee will be *reduced*. This policy will apply when the operating surgeon does not provide complete postoperative care for a patient (most commonly for geographic reasons). The reduction in payment will be based on the resource costs of the postoperative hospital and/or office visits used to calculate the global fee.

Concurrent Care. When a physician other than the principal surgeon provides a service *not included* in the global package, the principal surgeon's fee will *not* be reduced. This policy will apply when services are provided by an assistant surgeon, cosurgeon, or consultant. The concurrent care must be documented as medically necessary.

GLOSSARY

TERMS IN THE SURGICAL GLOBAL SERVICE POLICY

Concurrent Care. A service *not* included in the global package that is provided by a physician other than the principal surgeon.

Intraoperative Service. A service performed in the operating room by the principal surgeon.

Nonoperative Procedure. A technical service not performed at the time of surgery. Evaluation and management services are *not* included in this category.

Reoperation. A return to the operating room to manage complications of the primary operation.

Shared Care. A global service provided jointly by two physicians.

Staged Operation. A planned operation to complete or perfect the primary operation.

Surgical Consultation. The principal surgeon's evaluation of a patient for a new surgical problem.

Visit. Evaluation and management services that are provided preoperatively and postoperatively. Technical and invasive services are *not* included in this category.

APPENDIX D

PRACTICE COST DATA AND PRELIMINARY SERVICE GROUPS

In support of the discussion in Chapter 5, this appendix describes practice cost data available from various sources and an initial categorization of services into 32 groups.

PRACTICE COST DATA

Table D-1 presents the percentage of physicians' revenues accounted for by practice costs from four different sources: the American Medical Association (Gonzalez and Emmons, 1988); the 1988 Cost and Production Survey (Medical Group Management Association, 1988); the Continuing Survey of Medical Economics, Inc. (Holoweiko, 1988); and the Physician Practice Cost and Income Survey (PPCIS) conducted for the Health Care Financing Administration by the National Opinion Research Center, and augmented by PPRC to include expenses for malpractice premiums and other expenses not collected as part of the PPCIS. In general, these estimates are based on national surveys of physicians' practices, but they characterize differently defined physician populations and were obtained using different survey methodologies.

The ratio of practice costs to total revenue varies across the data sources displayed in Table D-1. The practice cost percentage for the average physician ranges from 38 to 48 percent. Significant variation is also exhibited for various specialties across data sources. For example, the practice cost percentage for general surgeons ranges from 32 to 45 percent, depending on source. These differences may reflect differences in survey methodology, accounting differences in definitions of revenues or costs, or sampling biases. In short, specialty-based cost allocation methods may be sensitive to the source of practice cost data.

Data in Table D-1, however, reveal patterns which exist irrespective of data source. First, the specialties of psychiatry, anesthesiology, pathology, and radiology tend to have lower practice costs relative to revenues. This is because physicians in the latter three specialties tend to provide relatively more hospital-based services; psychiatry is a less capital intensive specialty. Second--if these four specialties are excluded--relative specialty rankings do not exhibit much variation. For example, family practitioners have the highest cost percentage, and general surgeons have the lowest cost percentages in all four databases.

Table D-1. Practice Costs as a Percentage of Total Revenues, Selected Specialties: Various Data Sources

	PPRC 1986[a]	AMA 1986[b]	MGMA 1987[c]	MEDICAL ECONOMICS 1987
All Physicians	46%	48%	43%	38%
Family Practice	52	59	60	48
General Surgery	45	43	31	36
Internal Medicine	48	48	47	42
Obstetrics/Gynecology	50	50	49	45
Ophthalmology	48	48	48	42
Orthopedic Surgery	51	51	42	43
Psychiatry	26	32	na	25
Anesthesiology	37	38	28	18
Pathology	32	na	na	na
Radiology	40	44	37	16
Urology	44	48	na	37

Source: Physician Practice Cost and Income Survey (PPCIS) and PPRC analysis; the AMA's Socioeconomic Monitoring System Survey (Gonzalez and Emmons, 1988); the 1988 Cost and Production Survey (Medical Group Management Association, 1988); The Continuing Survey, Medical Economics, Inc. (Holoweiko, 1988).

Note: [a] PPRC estimates are based on 1983 survey data augmented with 1986 data on malpractice expenses, and residual expenses (such as practice administration) not captured by the NORC survey.

[b] The AMA Family Practice percentage was obtained by aggregating general and family practitioners.

[c] Data from single-specialty group practices only, and not necessarily a nationally representative sample.

Table D-2 displays the distribution of practice costs (per full time equivalent physician) by type of expense for various specialties. These tabulations are from the Commission's Survey of Physicians. The largest cost component is for office personnel. Personnel costs range from 37 to 46 percent of total practice costs. In general, cost percentages are similar across specialties except for the office, equipment, and malpractice components. Surgical specialists tend to spend a smaller fraction on office costs and a larger fraction (and higher total dollars) on malpractice insurance than the more office-oriented medical specialists. This suggests that special attention be paid to malpractice costs, and that care be exercised in the allocation of costs associated with office space and equipment.

Table D-2. Components of Practice Costs by Specialty: Proportions of Total Costs, 1986

	OFFICE AND NON-MEDICAL SUPPLIES	EQUIPMENT	DIAGNOSTIC SUPPLIES	OTHER MEDICAL SUPPLIES	SALARIES AND FRINGES	ADMINIS-TRATION	PROFESSIONAL LIABILITY INSURANCE
Cardiology	.25	.10	.04	.02	.43	.03	.12
Gastroenterology	.27	.05	.03	.03	.46	.04	.12
General/Family Practice	.25	.06	.07	.06	.42	.03	.12
General Internal Medicine	.27	.07	.06	.04	.43	.03	.10
General Surgery	.22	.03	.02	.03	.38	.03	.29
Ophthalmology	.28	.15	.02	.02	.41	.03	.08
Orthopedic Surgery	.21	.05	.04	.03	.45	.03	.20
Rheumatology	.27	.06	.07	.05	.41	.03	.10
Urology	.22	.06	.04	.04	.41	.05	.17
Other Medical	.26	.08	.06	.04	.40	.05	.11
Other Surgical	.20	.06	.03	.03	.37	.04	.29

Source: 1988 PPRC Survey of Physicians.

PRELIMINARY SERVICE GROUPS

As discussed in Chapter 5, the focus of the Commission's work to date has been on the development of a service-specific approach to cost allocation. To this end, the Commission is experimenting with different allocation methods. Services have been categorized by type of service and location. Eight different service types and four different places of service have been identified. Service groups are defined according to their CPT codes, as follows:

1. Visits/consultations: 90000-90080, 90200-90292, 90600-90699, 90750-90764, 92002-92014, 99000-99090, 99150-99199, 90100-90170, 90300-90470, 90500-90580, 90701-90749, 90780-90799, 96500-96549, 97010-97799.

2. Mental health services: 90801-90915.

3. Tests/procedures: 90774-90778, 92502-92599, 94010-94799, 95000-95999, 96900-96999, 80002-89399.

4. Gastroenterological procedures: 91000-91299, 43200-43228, 43235-43258, 44360-44393, 45300-45321, 45330-45336, 45355-45386, 46600-46614.

5. Ophthalmological services: 92018-92499.

Table D-3. Total Work for Medicare Physician Services by Type and Location of Service in a 5 Percent Sample of Claims

	LOCATIONS				
	OFFICES	INPATIENT	OUTPATIENT	OTHER	TOTAL
	millions of work units				
Visits/Consultations	375.08	420.27	31.97	30.85	858.18
Psychiatric	4.39	8.52	0.42	0.45	13.77
Tests/Procedures	29.30	2.35	1.03	0.10	32.78
Gastroenterology	8.50	10.72	7.70	0.02	26.94
Ophthalmology	2.22	0.06	0.19	0.01	2.48
Cardiovascular	20.81	19.70	3.00	0.21	43.72
Radiology	16.54	4.69	3.39	0.24	24.87
Surgery	45.40	171.88	74.14	0.26	291.69
All Services	**502.24**	**638.18**	**121.86**	**32.13**	**1,294.41**

Source: PPRC tabulation of BMAD files, 5% sample.

6. Cardiovascular services: 92950-93960.

7. Radiological services: 70010-76999, 78000-78999, 77261-77799, 79000-79999.

8. Surgery: 10000-69979, less the gastroenterological services in this range listed above.

The four location classifications have been defined as follows: office, inpatient hospital, outpatient (outpatient hospital or ambulatory surgical center), and "other," which includes services provided in the home, skilled nursing facilities, other nursing homes and hospices.

The allocation matrix thus contains 32 different service-location cells. Total work by the physician is one dimension along which costs or practice cost components might be allocated both across cells and across services within each cell. Table D-3 illustrates the service-by-location matrix and displays total work estimates. It is interesting to note that a considerable amount of total work is associated with visits and consultations (66 percent overall) and most of this work is for office and inpatient hospital services (61 percent of total work).

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APPENDIX E

TRENDS IN ASSIGNMENT, PARTICIPATION AND BALANCE BILLING

This appendix presents background information on legislation to encourage assignment and participation, trends in assignment rates and participation rates, and information on beneficiaries' experience with extra billing.

LEGISLATION TO ENCOURAGE PARTICIPATION AND ASSIGNMENT

Since the beginning of Medicare, physicians have been free to accept or reject assignment on a claim-by-claim basis. In recent years, however, legislation has established various limits on balance billing and a series of incentives for physicians to accept assignment.

The Participating Physician Program

The Participating Physician and Supplier Program (PAR) was created in 1984 by the Deficit Reduction Act of 1984 (P.L. 98-369, "DEFRA") to provide incentives for physicians to agree in advance to accept assignment on all Medicare claims during a year. Subsequent legislation has strengthened incentives. The PAR program is discussed in detail in Chapter 7.

The 1984-1986 Fee Freeze

In response to a huge federal budget deficit and rapidly rising Part B costs, DEFRA froze Medicare's allowable charges on all claims beginning July 1, 1984. DEFRA also froze billed charges of nonparticipating physicians to prevent physicians from circumventing the freeze and adding to beneficiary liability. After statutory extension, the freeze ended on May 1, 1986 for participating physicians but remained in effect until January 1, 1987 for nonparticipating physicians.

Maximum Allowable Actual Charge

The maximum allowable actual charge (MAAC) was created by the Omnibus Budget Reconciliation Act of 1986 (P.L. 99-509, "OBRA86") to continue constraints on the actual charges of nonparticipating physicians. MAACs expire at the end of 1990, but may be extended if they are not superseded by new policies on extra billing. MAACs are based primarily on actual charges in the second quarter of 1984 (the period just before the enactment of DEFRA). For physicians with relatively high charges--those exceeding 115 percent of the prevailing charge for nonparticipating physicians--the MAAC limits increases to 1 percent per year. Physicians whose charges are less than 115 percent of the prevailing charge can increase charges to that level by 1990.[1]

Mandatory Assignment for Laboratory Services

DEFRA and the Consolidated Omnibus Budget Reconciliation Act of 1985 (P.L. 99-272, "COBRA") require assignment for clinical laboratory services provided in independent laboratories and in physicians' offices. Medicare reimbursement is not paid for non-assigned laboratory claims. In addition, physicians can no longer "mark up" charges for laboratory tests performed by outside sources.

Balance Billing Limits on Procedures Whose Fees Were Reduced

In OBRA86 and the Omnibus Budget Reconciliation Act of 1987 (P.L. 100-203; "OBRA87") Congress imposed specific limits on actual charges for procedures whose allowable charges were systematically reduced because the procedures were considered overvalued. In 1989 charges may not exceed 125 percent of the reduced prevailing charge. These constraints seek to prevent increased extra billing for procedures with reduced prevailing charges.

Balance Billing Limits for the Radiology Fee Schedule

OBRA87 directed the Secretary of Health and Human Services, in consultation with the American College of Radiology and the Commission, to develop a national fee schedule for radiologists. The fee schedule was implemented in 1989. Radiologists' actual charges will be limited to 125 percent of the fee schedule in 1989, 120 percent in 1990, and 115 percent in 1991.[2]

TRENDS IN NATIONAL ASSIGNMENT RATES

After remaining relatively stable in the mid-70s (at just under 50 percent), national assignment rates for total Part B services began to rise gradually but steadily in the late 1970s (Table E-1).[3] Assignment rates then increased dramatically from 56.5 percent to 80.5 percent between 1983--just before the inception of the PAR

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[1] MAAC limits originally applied to the average annual charge for a given service. The Omnibus Budget Reconciliation Act of 1987 revised MAACs so that the limit applies to each service.

[2] The Secretary must also develop a fee schedule for pathology services. Further Congressional action is required to adopt the pathology fee schedule; policies with respect to extra billing were not stipulated in OBRA87.

[3] Assignment rates can be measured in two ways: as the percent of claims accepted on assignment, or as the percent of allowed charges accepted on assignment. Unless noted otherwise, the latter definition is used here.

Table E-1. Assignment Rates[a] and Charge Reduction Rates[b] for Total Part B Services, 1973-1988

CALENDAR YEAR	PERCENT ASSIGNMENT RATE		PERCENT CHARGE REDUCTION RATE	
	CLAIMS	CHARGES	ALL CLAIMS	UNASSIGNED CLAIMS
1973	56.9	49.7	12.2	12.6
1974	56.0	49.1	14.4	14.7
1975	55.9	49.0	17.4	17.7
1976	54.4	48.9	19.5	19.8
1977	54.0	49.6	19.0	19.0
1978	53.7	50.9	19.3	19.2
1979	54.0	51.9	20.8	20.7
1980	54.2	52.9	22.4	22.5
1981	54.9	54.2	23.5	23.8
1982	55.4	55.4	23.7	23.9
1983	55.8	56.5	23.2	23.0
1984	59.2	59.7	24.9	24.2
1985	68.5	68.6	26.9	25.9
1986	68.0	69.6	27.9	26.9
1987	73.1	75.2	27.2	24.7
1988	77.3	80.5	28.8	25.0

Source: HCFA, Medicare Participating Physician/Supplier Claims Workloads Reports and Reasonable Charge and Denial Reports, and Carrier Workload and Processing Time Reports.

Note: [a] Assignment rates for claims are based on claims received. Assignment rate for charges are based on claims processed.

[b] Charge reduction rate is defined as the percentage difference between physicians' billed charges and Medicare-allowed charges.

program--and 1988. Much of the increase appears to be attributable to the establishment and growth of the PAR program. During that period, constraints on prevailing charges and MAACs were also introduced.

Nonparticipating physicians have also contributed significantly to rising assignment rates. Their rates rose from an average of 24 percent in 1985 to 30 percent in 1987 (Rosenbach, Harrow, and Mitchell, 1988).

Overall assignment rates (Table E-1) somewhat overstate voluntary assignment rates, since providers are required to accept assignment for certain types of patients and services. Providers must accept assignment for Medicaid recipients, currently 9

Table E-2. Assignment Rates for Physician Services[a] 1985 - 1988

CALENDAR YEAR	ASSIGNMENT RATE BASED ON COVERED CHARGES (%)
1985	65.9
1986	66.7
1987	72.5
1988	78.3

Source: HCFA Bureau of Program Operations.

Note: [a] Excludes non-physician services.

percent of Medicare enrollees, and for laboratory services which account for about 9 percent of Part B expenditures. The voluntary assignment rate--that is, the assignment rate on services which are not subject to mandatory assignment--is about 74 percent.[4]

Table E-2 presents assignment rates for physician services only, 1985 to present. (Comparable data are not available for years prior to 1985.) Assignment rates for physician services are slightly lower than for all Part B services, partly as a result of required assignment on laboratory services.[5]

While rising assignment rates indicate that beneficiaries are being balance billed less frequently, the size of balance bills for unassigned claims has been increasing. Table E-1 shows the percent differences between physicians' billed charges and Medicare allowed charges, which are referred to as charge reduction rates. In 1988, the average balance bill for unassigned claims was 25 percent of the allowed charge.

The difference between submitted charges and Medicare allowed charges has been increasing for all claims, not only for unassigned claims (Table E-1). However, it is unclear whether this trend indicates that the payment differential between Medicare and private payers is actually growing. Competitive pressures from HMOs, PPOs, and IPAs may also be increasing charge reduction rates in private insurance.

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[4] PPRC estimate.

[5] Note that laboratory services provided by physicians in their offices are counted as physician services, not laboratory services; since 1986 they also have been subject to mandatory assignment.

Table E-3. The Participating Physician Program, 1984 - 1988

PAR PERIOD	PERCENT OF PHYSICIANS SIGNING PAR AGREEMENTS	PERCENT OF COVERED CHARGES[a]
October 1984 - September 1985	30.4	36.0
October 1985 - April 1986	28.4	36.3
April 1986 - December 1986	28.3	39.1
January 1987 - March 1988	30.6	48.1
April 1988 - December 1989	37.3	57.9

Source: HCFA, Medicare Participating Physician/Supplier Claims Workloads Reports and unpublished data from HCFA, Bureau of Program Operations.

Note: [a] "Percent of Covered Charges" is defined as PAR physicians' allowed charges as a percent of total allowed charges for physicians' services.

TRENDS IN NATIONAL PARTICIPATION RATES

After remaining at a stable 30 percent for the first three years of the program, the physician participation rate rose dramatically to 37 percent in 1988.[6] Factors contributing to this increase include balance billing constraints and the complex administrative requirements that MAACs imposed on nonparticipating providers. Other factors include improved processing times for PAR claims and an increase in the prevailing charge differential for PAR physicians.

Participating physicians deliver 74 percent of assigned care.[7] A disproportionate percentage of charges paid by Medicare are attributable to services provided by participating physicians, and the percentage is growing (Table E-3). Significantly, that trend began before the appreciable increase in the PAR rate in 1988.[8]

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[6] The participation rate is defined as the percent of physicians who treat Medicare patients who signed participation agreements.

[7] HCFA Bureau of Program Operations, 1988.

[8] The Commission is conducting an analysis of claims data to investigate causes of this disproportional increase.

VARIATION IN ASSIGNMENT AND PARTICIPATION RATES BY REGION, SPECIALTY, TYPE OF SERVICE, AND PLACE OF SERVICE

Both assignment and participation rates vary significantly in different locations, for different specialties, and for different sites and types of service.[9] Currently, assignment rates vary from about 38 percent to 97 percent among carrier areas.[10] (Carrier areas usually, though not always, correspond to states.) Generally the highest assignment rates occurred in the Northeast, the lowest in the North Central region and the South. However, significant differences exist among states and localities within regions as well as among regions.

Participation rates vary from 15 percent to 74 percent among states (HCFA, Participating Physician Reports). Generally there is a high correlation between states' pre-1984 assignment rates and subsequent participation rates.[11]

Assignment rates show large variation among specialties, although there is less variation among specialties than among states. In 1986, the last year for which data are available, assignment rates ranged from a low of 57 percent for anesthesiology to a high of 81 percent for psychiatry.[12] [13] Primary care specialties have lower assignment rates than medical subspecialties. But general surgery has a somewhat higher assignment rate than most surgical subspecialties.[14] Surgical procedures are more likely to be assigned than medical services, and inpatient services--including hospital visits--are more likely to be assigned than office visits.

Variations in participation rates among specialties correlate with longstanding differences in assignment patterns. General practitioners are less likely to participate than medical specialists or surgeons. General surgeons have notably high participation, 48.5 percent in 1988; while anesthesiologists have notably low participation, 25.0 percent in 1988.

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[9] These variations were discussed in detail on pp. 141-143 in the 1988 report, and will be only briefly summarized here.

[10] This excludes Massachusetts, which has a state-legislated prohibition against balance billing.

[11] For more detail on geographic variation of assignment rates and participation rates, refer to Appendix 9-A, pp. 155-156, in the Commission's 1988 report.

[12] PPRC and HCFA analyses of BMAD 5 percent beneficiary files.

[13] The assignment rate for anesthesiology did increase between 1985 and 1986, from 51 percent to 57 percent.

[14] For more detail, see p. 142 of the Commission's 1988 report to Congress.

Table E-4. Beneficiary Understanding of Assignment and Participation

BENEFICIARY CHARACTERISTICS	COULD DEFINE ASSIGNMENT	COULD DEFINE PARTICIPATION
	(PERCENT)	(PERCENT)
Total	**50**	**26**
Age		
< 65	53	30
65 - 74	53	28
75 - 84	47	23
85 +	38	19
Income (percent poverty level)		
Below	30	15
100 - 149%	39	21
150 - 199%	49	27
200 - 299%	61	29
300% and over	66	33
Health Status		
Excellent	55	27
Good	50	27
Fair	48	22
Poor	46	27
Hospitalized within year	52	27
Years of Education		
8 or less	31	15
9 - 11	44	20
High School Graduate	56	30
Some College	60	35
College Graduate	70	37

Source: 1988 PPRC Survey of Medicare Beneficiaries (Mathematica Policy Research).

Note: Table excludes Medicaid beneficiaries.

BENEFICIARY VIEWS ON ASSIGNMENT AND PARTICIPATION

Beneficiaries who are well-informed about the concepts of assignment and participation may be better able to find physicians who will take assignment. Similarly, beneficiaries who discuss financial matters with their physician and consider financial factors when choosing a physician may be more likely to get assigned care. However, PPRC's 1988 Survey of Medicare Beneficiaries[15] indicates that many beneficiaries do not understand assignment and participation policies, and that few beneficiaries are willing to consider finances when choosing a physician.

Only half of beneficiaries surveyed understood the concept of assignment and only one quarter understood participation (Table E-4). Low-income beneficiaries, those without a high school education, and those over age 85 are the least likely to understand assignment and participation.

Beneficiaries rarely discuss assignment policy with their physician. Only 7 percent of those surveyed had ever asked their nonparticipating physicians to accept assignment. A higher figure was reported in PPRC's 1988 Survey of Physicians:[16] nonparticipating physicians claimed that, on average, 13 percent of beneficiaries request assignment. Many factors may account for beneficiaries' reluctance to discuss assignment with their physician: confusion about cost-sharing requirements, embarrassment, or preoccupation with their illness.

PPRC's survey suggests that beneficiaries generally are reluctant to switch physicians for financial reasons. Less than a third of the beneficiaries who regularly see a physician who does not accept assignment are willing to switch to a physician who does (Table E-5). Half said they would definitely not consider switching. Only about 9 percent of respondents with a regular source of care said they would definitely switch to a physician who would always take assignment. Respondents are more willing to switch specialists; about 16 percent who regularly saw a specialist in addition to their primary physician would definitely switch specialists. In open-ended responses, most beneficiaries explained that they would not switch because trusting their physician is more important than financial considerations.

Older beneficiaries are least likely to consider switching for financial reasons. Significantly, a respondents' income did affect their willingness to switch physicians, particularly specialists. Poorer beneficiaries were more likely to switch because of assignment policy. (Note that lower income beneficiaries demonstrated the least understanding of assignment and participation.) On the whole, health status had little influence on respondents' willingness to switch physicians.

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[15] This telephone survey was conducted by Mathematica Policy Research; the field period was November 1988 through January 1989.

[16] This survey was conducted by Westat, Inc. and Project Hope; the field period was fall, 1988.

Table E-5. Beneficiaries Who Would Definitely Switch or Consider Switching to a Participating Physician

BENEFICIARY CHARACTERISTICS	WOULD CONSIDER FOR REGULAR SOURCE OF CARE (PERCENT)	WOULD CONSIDER FOR SPECIALIST (PERCENT)
Total	30	34
Age		
< 65	61	50
65 - 74	30	36
75 - 84	30	31
85 +	18	25
Income (percent poverty level)		
Below	32	48
100 - 149%	33	36
150 - 199%	33	29
200 - 299%	36	34
300% and over	30	34
Health Status		
Excellent	34	27
Good	27	37
Fair	33	34
Poor	32	33
Hospitalized within year	28	29

Source: 1988 PPRC Survey of Medicare beneficiaries.

Note: Table excludes Medicaid beneficiaries.

BALANCE BILLING LIABILITY

Aggregate Balance Billing Liability

Table E-6 shows enrollees' liability for extra billing, 1979-1988. The decrease in enrollee liability that began in 1986 corresponds to the implementation of the MAAC program. In 1988, cumulative liability for balance billing was $2.25 billion.[17]

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[17] Physician organizations claim that a significant portion of overall balance billing liability is never collected, but the proportion of the total which is collected is not known.

Table E-6. Enrollee Liability for Balance Bills for Total Part B Services, 1979-1987

CALENDAR YEAR	TOTAL LIABILITY (IN BILLIONS OF $)	LIABILITY PER ENROLLEE (IN $)
1979	1.16	43
1980	1.54	56
1981	1.88	67
1982	2.28	80
1983	2.51	87
1984	2.72	92
1985	2.60	87
1986	2.89	94
1987	2.54	82
1988	2.25	71

Source: HCFA Reasonable Charge and Denial Activity Reports (total liability); HCFA Office of the Actuary, and Statistical Information Services Branch (enrollment data).

Note: Total liability for balance bills is defined as the total difference between physicians' submitted charges for unassigned claims and Medicare allowed charges for unassigned claims.

This amounts to about 7 percent of total Part B expenditures.[18] PPRC estimates that balance billing liability was $94 for each beneficiary receiving covered services, or $154 for each beneficiary who was actually balance billed at least once.[19]

The Distribution of Balance Billing Liability

Aggregate statistics on balance billing can be misleading, since balance billing is unevenly distributed among beneficiaries. PPRC simulations show that 39 percent have no balance billing, while 10 percent of beneficiaries account for 71 percent of total balance billing. (Chapter 7, Table 7-2 presents more detailed distributions of balance billing liability from PPRC's simulations of the Medicare Fee Schedule.)

An analysis of 1987 claims data from eight states by The Circle, Inc. concluded that most of the liability for balance billing falls on beneficiaries with over $1000 of

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[18] In 1988, Part B expenditures for benefits payments were $33,970,000,000 (HCFA, Office of the Actuary).

[19] HCFA estimates that 24,000,000 beneficiaries had part B claims paid in 1988. PPRC estimates that 39 percent of all beneficiaries, including the 10 percent with Medicaid coverage, have no balance bills.

Table E-7. Assignment by Beneficiary Income

	PERCENT REPORTING RECEIVING ASSIGNMENT		WAS RESPONDENT BALANCE - BILLED ON MOST RECENT BILL	
	BY REGULAR PHYSICIAN[a]	LAST VISIT TO SPECIALIST[b]	YES	DON'T KNOW
All	55	69	12	17
Income (percent poverty level)				
Below poverty level	65	67	7	19
100 - 149%	59	69	8	18
150 - 199%	51	74	12	21
200 - 299%	51	70	15	19
300% and over	54	66	18	13

Source: 1988 PPRC Survey of Beneficiaries.

Note: Table excludes Medicaid Beneficiaries.

[a] Beneficiaries reporting that their regular source of care usually takes assignment. Those reporting that their regular source of care sometimes takes assignment are not included.

[b] Beneficiaries reporting that they received assignment on their last bill for specialist services.

Part B allowed charges and $500-$2000 of balance billing. These beneficiaries have both a large number of unassigned claims and large balance bills.

Balance Billing by Income

While physician organizations traditionally have claimed that physicians consider beneficiaries' financial status in making assignment decisions, data suggest that a third of poor and near-poor beneficiaries without Medicaid may experience some balance billing (Table E-7).[20]

In the 1988 PPRC Survey of Physicians, 84 percent of nonparticipating physicians responded that they had patients for whom they routinely accepted assignment. Of these, 67 percent stated that patients' financial status affected their assignment decisions and an additional 27 percent said "financial and other factors" influenced them. But beneficiary finances were not the only factors determining assignment: 33 percent of nonparticipating physicians said they performed certain services for which they routinely accept assignment, while 32 percent said they performed certain services for which they routinely did not accept assignment.

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[20] It was clear from PPRC's survey, like previous surveys, that it is difficult to estimate balance billing expenditures from information that respondents are able to provide. Later this year, PPRC will receive and analyze 1988 Medicare claims data for all of its survey respondents. This analysis will permit a precise determination of which respondents were balance billed and how balance billing corresponded to beneficiary income. The comparison of claims and survey data for the same individuals will improve knowledge about survey research on beneficiaries' financial matters.

Evidence suggests poor beneficiaries are more likely to receive assigned care than high-income beneficiaries. Table E-7 presents PPRC survey data on two measures of balance billing among different poverty status groups. About 65 percent of poor beneficiaries without Medicaid report that their regular physician usually accepts assignment, compared to 54 percent of beneficiaries with incomes over 300 percent of the poverty line.[21] Similarly, 7 percent of poor beneficiaries were certain they had been balance billed on their last bill, compared to 18 percent of beneficiaries with incomes over 300 percent of the poverty line.

Balance Billing by Health Status

Patients with generally high medical expenses account for the bulk of balance billing. The PPRC survey demonstrated no clear relationship between health status and the likelihood of receiving assigned care. However, the Circle, Inc. study clearly shows that beneficiaries with large overall medical expenses bear the brunt of balance billing.[22] Beneficiaries with low Medicare costs and those with high Medicare costs had the same fraction of balance billing liability to total liability. In other words the study found that physicians did not forgo extra billing for patients with high medical costs.[23] As was discussed in Chapter 7, a large proportion of balance billing is concentrated among a small proportion of beneficiaries with very high medical bills.

Balance Billing by Age

Patient age does not seem to be a major determinant of balance billing.[24] In the PPRC survey of beneficiaries, assignment varied only slightly among age groups.

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[21] It has already been noted that many survey respondents did not understand the concepts of assignment and participation. The survey was designed to educate respondents regarding such concepts and to use easily understood questions as proxies for other complex information. For example, respondents were asked whether Medicare usually sent the check to their physician or to them. Since Medicare sends checks directly to physicians only for assigned claims, this question gave one indicator of the respondent's assignment experience.

[22] Again, it should be noted that we do not know what percentage of balance bills are actually collected by physicians.

[23] The balance billing rate--the ratio of balance billing liability to allowed charges--was a constant 7 percent for all beneficiaries.

[24] Here we are considering age only among elderly Medicare beneficiaries, not among the under-65 disabled.

REFERENCE

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APPENDIX F

STATE ACTION TO CONSTRAIN BALANCE BILLING

While federal policy has increased incentives for voluntary assignment and has constrained the rate of increase in billed charges, several states have taken more aggressive action to limit extra billing.

In 1985 Massachusetts became the first state to adopt legislation constraining Medicare balance billing beyond federally-imposed limitations. Under Chapter 475 of the Acts of 1985, Massachusetts prohibited physicians from balance billing on all Medicare claims as a condition for medical licensure. Chapter 475 was passed over the strenuous objection of the Massachusetts Medical Society, which argued that mandated assignment would jeopardize quality of care and access to care for Medicare beneficiaries. Chapter 475 withstood several court challenges by the Society.

The regulatory and medical environment in which Massachusetts imposed mandatory assignment was unique in several ways.[1] The state had high voluntary assignment (91 percent) before balance billing was prohibited.[2] Massachusetts Blue Shield, the dominant insurer of physician services in the state, had required assignment on all services to private subscribers since 1968.[3] Moreover, the state has a high physician-to-population ratio. Thus state legislators judged it unlikely that mandated assignment for Medicare would significantly impair access to care for Medicare beneficiaries.

In the last two years, a number of states have considered but failed to pass legislation similar to Massachusetts'.[4] State regulation is complicated because states have no control over Medicare allowable charge levels. If Medicare fees are inadequate, state prohibitions on balance billing could have the unintended consequence of reducing access to care. Therefore, mandatory assignment proposals have sometimes divided beneficiary communities.[5] In all cases, these bills were opposed by the state medical community.

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[1] Actually, in Massachusetts and all other states discussed in this section, statutory prohibitions or limitations on balance billing do not actually require physicians to "take assignment," that is, to submit their bills to Medicare directly. They simply forbid physicians to charge more than the Medicare-allowed charge. However, for convenience these provisions are often referred to as "mandated assignment."

[2] HCFA, Medicare Participating Physician\Supplier Claims Workloads Reports.

[3] This provision was statutorily enacted as part of Massachusetts Blue Shield's enabling legislation in 1984.

[4] These are Arkansas, California, Florida, Indiana, Illinois, Iowa, Maine, Maryland, Mississippi, Montana, New Hampshire, Pennsylvania, Oregon, Ohio, New York, Rhode Island, South Carolina, and Wyoming. This list includes bills that were voted down in floor votes, tabled in committee, or expired in committee.

Though no statutes as stringent as that of Massachusetts have been passed elsewhere, three states have approved legislation that expressly ties required assignment to the beneficiary's income level. Rhode Island now defines Medicare balance billing of low-income beneficiaries (those with annual incomes less than $12,000 or $15,000 for a couple) as unprofessional conduct. In July 1988, Connecticut prohibited balance billing for low-income beneficiaries ($19,950 or $24,000 for a couple) who apply for identifying cards. Previously, physician cooperation had been voluntary. Vermont forbids balance billing for beneficiaries below a moderate income level ($25,000 or $32,000 for a couple); however, office visits are exempted from the requirement.

In Rhode Island, the law specified an income ceiling below which balance billing is prohibited. But there is no formal administrative mechanism to identify eligible beneficiaries. Beneficiaries simply declare their eligibility to their physician. The income levels for mandated assignment are identical to those for eligibility in the state's pharmaceutical assistance (PA) program. Theoretically, a beneficiary with a PA card is automatically covered by the assignment law, although physicians have not been explicitly notified about this.

The PA sign-up rate suggests the extent to which low-income beneficiaries can be expected to identify themselves for guaranteed assignment, since eligibility is the same in both programs. About half of Rhode Island's eligibles have obtained PA cards. The local Medicare carrier has helped the state achieve this level by including notices about the PA program with Explanation of Medicare Benefits (EOMB) forms. Ignorance, embarrassment, or bureaucratic nuisance may prevent others who are eligible from obtaining their cards.

In Connecticut, the income levels for mandatory assignment are higher than those for pharmaceutical assistance. PA recipients can use their PA card to guarantee acceptance of assignment, while those eligible for mandated assignment, but not for PA, apply for a "ConMed" card through the state Department on Aging. Officials estimate that a total of 299,000 beneficiaries are eligible for guaranteed assignment. As of January 1989, 53,000 Connecticut beneficiaries had PA cards and 5000 had ConMed cards. The Department on Aging has designed a flier explaining the income-related assignment provision and informing beneficiaries how to apply for cards; 75,000 fliers have been sent to physicians, senior centers, nutrition centers, municipal agents on aging, and organizations representing the elderly. At this point, it is difficult to assess the success of the ConMed program. The program has only been operational for half a year, and no funds were earmarked for administering the program this year.[6]

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[5] In Washington, for example, the public voted down a 1987 referendum that would have defined balance billing as an unfair business practice. The referendum was sponsored by the Puget Sound Council of Senior Citizens, but was opposed by the state legislative committee of the American Association of Retired Persons (AARP). The state AARP, citing Washington's assignment rate of only 50 percent and information from the Public Health Service's Primary Care Health Manpower Shortage Area Designations, expressed concern that mandated assignment might significantly impair access to care for Medicare beneficiaries. Nearly 200,000 Washington residents currently live in designated health manpower shortage areas.

Vermont's income-related assignment program is less dependent on beneficiary awareness and voluntary self-identification. Vermont's statute ties guaranteed assignment to social security taxability. Physicians must provide forms in their offices asking Medicare patients whether they paid taxes on their social security income last year, did not pay taxes on their social security income, or don't know if they did. The form also explicitly states a beneficiary's right to refuse to submit the form. If a patient paid taxes or refuses to answer, the physician may balance bill. If a patient did not pay taxes, the physician can not balance bill. If a patient "doesn't know," the physician must wait for the patient to check tax records before balance billing. If a physician does not provide the form, the physician cannot balance bill. Assignment rates had been increasing in Vermont before passage of the income-related assignment legislation in July, 1987. Since the statute was enacted, the state's assignment rate has increased dramatically from 70 percent to over 90 percent. Vermont's participation rate has also increased, from 34 to 39 percent.

Many state and county medical societies are operating or considering voluntary programs that request physicians to take assignment for low-income beneficiaries.[7] Certain medical specialty societies have shown interest in such voluntary programs as well.[8]

The U.S. General Accounting Office is currently examining beneficiary and physician issues related to mandatory, income-related, and voluntary assignment programs in nine states. Their report to the Subcommittee on Housing and Consumer Interests, House Select Committee on Aging is scheduled to be delivered later this year.

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[6] The previously voluntary Connecticut program became mandatory in July when physicians failed to meet legislatively set goals for assignment rates. (The target goal was 85 percent assignment based on claims, and only 78 percent assignment was achieved.) Before "ConMed" was mandatory, administration of the voluntary income-related program was handled by the state medical society.

[7] The AMA reports that 25 state medical societies have voluntary income-related assignment programs and ten others are developing such programs. (Communication from AMA to PPRC, April 11, 1989.)

[8] The American Society of Internal Medicine sponsors "Personal Care," a voluntary program in which enrolled physicians agree not to balance bill beneficiaries in financial need. Emblems in cooperating physician's offices identify these physicians.

APPENDIX G

SIMULATION METHODOLOGY

This appendix describes the simulation methodology, including data development and the calculation of Medicare Fee Schedule (MFS) payments that was discussed in Chapter 9. In the simulations, Medicare CPR payments and beneficiary liabilities for a large sample of Medicare claims from 1988 are compared with estimated payments and liabilities for the same services under the MFS. The simulations examine differences between CPR allowed amounts and the fee schedule payments aggregated over beneficiaries in various age, location, and income categories as well as over physicians in different specialties and geographic areas.

DATA

The simulations are based on two large files of Medicare claims information from the 1986 Medicare Annual Data (BMAD) system: BMAD III, including all claims for a 5 percent sample of Medicare providers, and BMAD IV, including all claims for a 5 percent sample of beneficiaries. Analyses also used the 1986 BMAD I Procedure file, a summary of local charges and other data for all claims filed during that year (U.S. DHHS, HCFA, 1987).

Forecasting the impact of a fee schedule requires the examination of a significant portion of the claims information on the two primary data files. The physician simulation file contains BMAD III data for all services provided by over 19,000 physicians drawn from the top 25 Medicare specialties in terms of allowed charges received (Table G-1).[1]

Together, these specialties account for approximately 94 percent of Medicare expenditures on physician services. Among the most important specialties, only anesthesiology is excluded from analysis because of difficulties with data. For each specialty in the simulations, the included procedures cover at least 80 percent of their total Medicare allowed charges.

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[1] The Social Security Act defines "physician" as a doctor of Medicine or Osteopathy. Dentists, optometrists, podiatrists and chiropractors are included for specific services. The physician file includes podiatrists and chiropractors. The beneficiary file includes dentists, optometrists, podiatrists and chiropractors. In the simulations, however, these non-physician providers are paid at the baseline CPR allowed amount.

Table G-1. Physician Simulation Specialties
Distribution of Allowed Charges for Physician Services, 1986

SPECIALTY	$ MILLION	PERCENT	CUMULATIVE PERCENT
Internal Medicine	$3,360	16.4%	16.4%
Ophthalmology	2,486	12.1	28.5
Radiology	1,779	8.7	37.1
General Surgery	1,620	7.9	45.0
Cardiovascular Disease	1,245	6.1	51.1
Clinic	1,215	5.9	57.0
Orthopedic Surgery	1,082	5.3	62.3
Anesthesiology	931	4.5	66.8
General Practice	923	4.5	71.3
Family Practice	843	4.1	75.4
Urology	754	3.7	79.1
Thoracic Surgery	679	3.3	82.4
Gastroenterology	420	2.0	84.5
Podiatry	360	1.8	86.2
Dermatology	341	1.7	87.9
Pulmonary Disease	263	1.3	89.2
Neurology	259	1.3	90.4
Psychiatry	245	1.2	91.6
Pathology	226	1.1	92.7
Otolaryngology	224	1.1	93.8
Miscellaneous	214	1.0	94.9
Nephrology	201	1.0	95.8
Neurosurgery	192	0.9	96.8
Obstetrics/Gynecology	152	0.7	97.5
Chiropractor	102	0.5	98.0
Plastic Surgery	101	0.5	98.5

Source: PPRC Simulations.

The beneficiary analyses are based on BMAD IV records for a stratified random sample of more than 82,000 beneficiaries selected from the BMAD IV 5 percent sample of beneficiaries. The simulation excludes those beneficiaries who are dual Medicare/Medicaid beneficiaries and those who did not file claims. The analysis file contains all BMAD IV records of claims submitted by the sampled beneficiaries for physician services.

The Health Care Financing Administration and the Social Security Administration provided basic information about demographic and economic characteristics of the sampled beneficiaries (sex, race, Medicaid eligibility, Social Security benefits and location), while preserving their confidentiality. The relationship between these characteristics and total income was estimated using the 1986 Current Population Survey (CPS) (U.S. Department of Commerce, Bureau of the Census, 1986). Poverty status was then imputed for beneficiaries in the simulation from the CPS derived formula. The poverty status for 10.5 percent of the sampled beneficiaries could not be determined. Those beneficiaries are included in the impact analysis by every category except income.

PPRC used the 1983 Physician Practice Cost and Income Survey to estimate the ratio of practice costs to gross revenue. After cleaning that data, practice costs for office space, wages and fringes of employees, equipment and supplies, professional liability insurance, and residual items were calculated. Physician fringe benefits were included in net revenues rather than in practice costs. These estimates were updated to 1986, adjusting for growth of practice costs, especially in professional liability insurance premiums.

AGING THE 1986 DATA TO 1988

Between 1986 and 1988, Congress mandated reductions and other limits on Medicare charges for overvalued procedures. During that time, Congress also established Maximum Allowable Actual Charge (MAAC) limits on the submitted charges of non-participating physicians, as well as different Medicare Economic Index adjustments for primary and nonprimary care. In order not to confuse the effects of a fee schedule with effects of these legislative changes, baseline 1986 prevailing charges on the simulation files were inflated to 1988 levels subject to limits for overvalued procedures and the different Medicare Economic Index (MEI) updates for primary and nonprimary care. Submitted and customary charges for 1988 were estimated by applying the physician services component of the all-urban Consumer Price Index to 1986 BMAD III and BMAD IV submitted charges subject to MAAC limits. Physician participation and assignment rates were not aged.

COMPUTING WORK VALUES

The Hsiao Phase I Report (September 1988) provided work values for about 1,400 procedures. By December 1988, the Hsiao team revised the work values for EM and other codes, and eliminated some values for other codes. The December Supplemental Report was used to extrapolate values and simulate impacts.

There was a need to estimate work values for more codes than the Hsiao study provided in order to have a comprehensive analysis of the impact of the fee schedule. Thirty-six families of services and procedures based on categories of CPT codes were developed. The families used for these extrapolations are broader than those used by the Hsiao team. In order to estimate work values, extrapolations based on average Medicare submitted charges and the implicit work/charge relationships within each family were calculated.

Total work values for surgical global services were adjusted prior to fee schedule estimation. The definition of the surgical global service in the Hsiao study is narrower than those used by most Medicare carriers (see Chapter 4). Using the results of PPRC's Medicare Carrier Survey, the Commission adjusted the total work values for surgical services so that they corresponded to the global service policy used by each carrier. This adjustment reduced the extent to which payments for surgical procedures would be reduced under the fee schedule when compared to estimates published by Hsiao and earlier ones from the Commission.

The simulations are based on the relative total work values for evaluation and management (EM) services reported by Hsiao and his colleagues in their Supplemental Report to HCFA (December 1988). The Commission recommends revising the coding system for EM services by incorporating time in the definitions for levels of service (see Chapter 3). However, since the Commission needs additional data to calibrate the system and a consensus process to develop definitive coding definitions, this reform was not incorporated in the current simulations. A comparison of the illustrative model presented in Chapter 3 with the simulations suggests that incorporating time in the EM coding system would not substantially change the distribution of payments for EM services among specialties.

COMPUTING MEDICARE FEE SCHEDULE PAYMENTS

Under the MFS, payment for a service includes compensation for total work (TW) and practice costs. Payments for each procedure are computed as follows:

$$PAYMENT = [(TW * CFW) + (PC * GM * CFC)]$$

where

$PAYMENT$ = *fee schedule determined payment,*
TW = *total work per procedure,*
CFW = *work conversion factor,*
PC = *estimated practice costs,*
GM = *geographic multiplier, and*
CFC = *cost conversion factor.*

The estimated practice cost (PC) for each service is the product of two specialty-specific factors: ratios of practice costs to gross revenue, and the national average CPR allowed charge for the procedure.[2] The estimated practice cost is adjusted by geographic multipliers (GM) described in Chapter 6. Finally, geographic-adjusted practice costs are multiplied by a conversion factor (CFC) to achieve budget neutrality with respect to total practice costs before the geographic adjustment.

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[2] Although the Commission recommends the adoption of a procedure specific approach to practice costs (see Chapter 5), that methodology has not been developed yet. The methodology used in the simulations is an additive specialty approach.

The total work portion of the payment is determined by multiplying TW values per procedure by a conversion factor (CFW) set to assure budget neutrality with respect to CPR allowed charges net of estimated practice costs. The fee schedule payment for a service is the sum of the payment for TW and the geographic-adjusted practice costs.

REFERENCES

U.S. Department of Commerce, Bureau of Census, *Current Population Survey, March 1986* (machine-readable data file), produced by the Bureau of Census for the Bureau of Labor Statistics, Washington, DC, 1986.

U.S. Department of Health and Human Services, Health Care Financing Administration, Bureau of Data Management and Strategy, "Medicare Statistical Files Manual," April 1987.

GLOSSARY

ACRONYMS

AAPCC	Average Adjusted Per Capita Cost
ABMS	American Board of Medical Specialties
ACP	American College of Physicians
ACS	American College of Surgeons
AMA	American Medical Association
ARF	Area Resource File, Bureau of Health Professionals, Health Resources and Services Administration, U.S. Public Health Service
ASPE	Assistant Secretary for Planning and Evaluation, U.S. DHHS
AVG	Ambulatory Visit Group
BERC	Bureau of Eligibility Reimbursement and Coverage, HCFA
BDMS	Bureau of Data Management and Strategy, HCFA
BMAD	Part B Medicare Annual Data Files
BPO	Bureau of Program Operations, HCFA
BQC	Bureau of Quality Control, HCFA
CF	Conversion Factor
CMP	Competitive Medical Plan
CPR	Customary, Prevailing, and Reasonable
CPT	Current Procedural Terminology
DHHS	U.S. Department of Health and Human Services
DRG	Diagnosis Related Group
EMC	Electronic Media Claims
FFS	Fee-for-Service
GAO	U.S. General Accounting Office
GCOP	Geographic Cost-of-Practice Index
GM	Geographic Multiplier
EM	Evaluation and Management
HCFA	Health Care Financing Administration
HCPCS	HCFA Common Procedure Coding System
HHS	Department of Health and Human Services (also referred to as U.S. DHHS)

HI	Hospital Insurance Program (Medicare Part A)
HMO	Health Maintenance Organization
HSQB	Health Standards and Quality Bureau, HCFA
ICD-9	International Classification of Disease--Ninth Edition
IPA	Independent Practice Association
JCAHO	Joint Commission on the Accreditation of Healthcare Organizations
LCL	Lowest Charge Level Limit
MAAC	Maximum Allowable Actual Charge
MEI	Medicare Economic Index
MFS	Medicare Fee Schedule
MSA	Metropolitan Statistical Area
OIG	Office of the Inspector General, U.S. DHHS
OPHC	Office of Prepaid Health Care, HCFA
PAR	Participating Physician Program
PC	Practice Costs
PLI	Professional Liability Insurance
PPO	Preferred Provider Organization
PPRC	Physician Payment Review Commission
PPS	Prospective Payment System
ProPAC	Prospective Payment Assessment Commission
PROs	Peer Review Organizations
QA	Quality Assurance
QMB	Qualified Medicare Beneficiary
RBRVS	Resource-based Relative Value Scale
RVS	Relative Value Scale
SEM	Standard Error of the Mean
SMI	Supplementary Medical Insurance Program (Medicare Part B)
SMSA	Standard Metropolitan Statistical Area
TW	Total Work
UCR	Usual, Customary, and Reasonable

LEGISLATION (Listed Chronologically)

TEFRA	Tax Equity and Fiscal Responsibility Act of 1982, P.L. 97-248, enacted September 3, 1982.
DEFRA	Deficit Reduction Act of 1984, P.L. 98-369, enacted July 18, 1984.
COBRA	Consolidated Omnibus Budget Reconciliation Act of 1985, P.L. 99-272, enacted April 7, 1986
OBRA86	Omnibus Budget Reconciliation Act of 1986, P.L. 99-509, enacted October 21, 1986.
OBRA87	Omnibus Budget Reconciliation Act of 1987, P.L. 100-203, enacted December 21, 1987
	Medicare Catastrophic Coverage Act of 1988, P.L. 100-360, enacted July 1, 1988

SURVEYS, STUDIES, AND RESEARCH ORGANIZATIONS

CBS	Current Beneficiary Survey
CHER	Center for Health Economic Research
HIS	Health Interview Survey
HSUS	Health Services Utilization Study (RAND)
NAMCS	National Ambulatory Medical Care Survey
NCHS	National Center for Health Statistics
NCHSR	National Center for Health Services Research
NHDS	National Hospital Discharge Survey
NMCES	National Medical Care Expenditures Survey, 1977
NMCUES	National Medical Care Utilization and Expenditure Survey, 1980
NMES	National Medical Care Expenditures Survey, 1987
PPCIS	Physicians Practice Cost and Income Survey
SMS	Socioeconomic Monitoring System (AMA)
UI	Urban Institute

TERMS

Access: The ability to obtain needed medical care.

Actual Charge: One of the factors determining a physician's payment for a service under Medicare; equivalent to the billed or submitted charge. See Customary, Prevailing, and Reasonable.

Adjusted Average Per Capita Cost (AAPCC): An estimate of the average per capita cost incurred by Medicare per beneficiary in the fee-for-service system, adjusted by county for age, sex, and program entitlement.

Allowed Charge (Approved Charge): Payment for a physician service under CPR, includes the payment from Medicare and the beneficiary's coinsurance, but not any balance bill. See Balance Bill, Coinsurance, Customary, Prevailing, and Reasonable.

Assignment (Medicare): The term used to refer to a physician's decision to accept Medicare's allowed charge prior to submitting a bill; a guarantee not to balance bill. Physicians accepting assignment bill Medicare directly. See Balance Billing/Extra Billing, Non-Participating Physician, Participating Physician Program.

Assistant at Surgery: An individual who has the necessary qualifications to participate in a particular operation and actively assists in performing the surgery.

Balance Bill/Extra Bill: Physicians' charges exceeding the Medicare allowed charge.

Beneficiary: A person eligible for benefits under an insurance plan. Under Part B of Medicare, Americans over 65, many disabled individuals, and certain individuals with end-stage renal disease can become beneficiaries by paying a monthly premium.

Beneficiary Survey: A 1988 survey of a national sample of beneficiaries regarding assignment, participation, balance billing and understanding of the Medicare program. The survey was sponsored by PPRC and conducted by Mathematica Policy Research.

Carrier (Medicare): A private contractor who administers claims processing and payment for Part B services. See Part B (Medicare).

Charge Reduction (Rate): The percentage difference between a physician's billed charge and the Medicare allowed charge.

Coding: A mechanism for identifying and defining physician services.

Coinsurance: The portion of the balance of covered medical expenses which a beneficiary must pay after payment of the deductible. Under Medicare Part B, the beneficiary pays coinsurance of 20% of allowed charges. See Deductible.

Competitive Medical Plan (CMP): A health plan that is eligible under TEFRA 1982 to enter into a Medicare risk contract in return for a capitation payment, but which does not satisfy the requirements to be a federally qualified HMO. See Capitation, Federally Qualified HMO.

Conversion Factor: The multiplicative factor applied to the scale of relative work to produce a schedule of dollar amounts of payment for physicians' work.

Cost-of-Practice Index (Medicare): A measurement of the differences across geographic areas in the prices of inputs used in medical practices.

Cost-sharing: The portion of payment for health expenses that the beneficiary must pay, including the deductibles, copayments, coinsurance, and extra bill. See Deductible, Copayment, Coinsurance, and Balance Billing.

Current Procedural Terminology (CPT): Coding system for physician services developed by the American Medical Association; basis of the HCPCS coding system. See Coding, HCFA Common Procedures Coding System (HCPCS).

Customary Charge: One of the factors determining a physician's payment for a service under Medicare. Calculated as the physician's median charge for that service over a prior 12-month period. See Customary, Prevailing, and Reasonable.

Customary, Prevailing, and Reasonable (CPR): Current method of paying physicians under Medicare. Payment for a service is limited to the lowest of 1) the physician's billed charge for the service, 2) the physician's customary charge for the service, or 3) the prevailing charge for that service in the community. Similar to the Usual, Customary, and Reasonable system used by private insurers. See Customary Charge, Prevailing Charge.

Deductible: A specified amount of covered medical expenses which a beneficiary must pay before receiving benefits. Medicare Part B has an annual deductible of $75.

Diagnosis-Related Groups (DRGs): System of classifying medical cases for payment on the basis of diagnoses, used under Medicare's prospective payment system (PPS) for inpatient hospital services.

Dual Eligibles: Medicare beneficiaries who also receive the full range of Medicaid benefits offered in their state.

Evaluation/Management Services: Nontechnical services provided by most physicians for the purpose of diagnosing and treating diseases and counseling and evaluating patients.

Expenditure Targets: A mechanism to adjust fee updates (or fees themselves) based on how actual expenditures in an area compare to a target for those expenditures.

Extra Billing: See Balance Billing.

Federally Qualified HMO: An HMO that has satisfied certain federal qualifications pertaining to organizational structure, provider contracts, health service delivery information, utilization review/quality assurance, grievance procedures, financial status, and marketing information.

Fee-for-Service: Refers to paying physicians for individual medical services rendered, as opposed to paying them with salaries or under capitation. CPR and fee schedules are examples of fee-for-service.

Fee Schedule: A catalog of predetermined payments for units of medical service.

Fiscal Intermediary (FI): A private contractor who administers claims for Part A services (e.g., hospital, nursing home) and some Part B services (e.g., hospital outpatient departments).

Geographic Multiplier: This multiplier is used for making geographic adjustments to the Medicare fee schedule. The Commission recommends that the geographic multiplier adopted be based on a geographic index of practice costs.

Global Service: Package of clinically related services treated as a unit for purposes of billing, coding, or payment.

Group Model HMO: An HMO that contracts with a medical group to provide the necessary services to a defined population. The HMO usually pays the medical group a monthly amount per member to provide services to enrollees. Payment to individual physicians is determined by the medical group.

HCFA Common Procedure Coding System (HCPCS): Coding system based on CPT, but supplemented with additional codes for nonphysician services; required for coding by Medicare carriers. See Coding, Current Procedural Terminology (CPT).

Health Maintenance Organization (HMO): An organization that provides comprehensive health services to its members in return for a fixed prepaid fee. There are four types of HMOs: group, staff, independent practice association, and network.

Independent Practice Association (IPA) Model HMO: An HMO which contracts directly with physicians who continue to practice in their private offices and are generally paid on a fee-for-service or capitation basis. See Health Maintenance Organization (HMO).

Locality (Medicare): A geographic area for which a carrier calculates prevailing charges. A locality can be a state, or aggregations of counties, parts of counties, metropolitan areas, zip code areas, or townships.

Maximum Allowable Actual Charge (MAAC): A limitation on billed charges for Medicare services provided by non-participating physicians. For physicians with charges exceeding 115 percent of the prevailing charge for nonparticipating physicians, MAACs limit increases in actual charges to 1 percent a year. For physicians whose charges are less than 115 percent of the prevailing, MAACs limit actual charge increases so they may not exceed 115 percent. See Actual Charge, Non-Participating Physician.

Medicaid: A State/Federal Program of health insurance for the poor and medically indigent. States share in financing the program and determine eligibility and benefits consistent with federal standards.

Medicare Economic Index (MEI): A limitation on prevailing charges for Medicare services, in effect since 1975. Annual increases in the MEI are based on increases in physician practice costs and increases in general earnings levels. See Prevailing Charge.

Medigap Insurance: Private health policies providing benefits not covered by Medicare, such as coinsurance.

Network Model HMO: An HMO which contracts with two or more medical groups to provide services to members usually in return for a predetermined monthly fee from the HMO.

Nonparticipating Physician: A physician who does not sign a participation agreement, and therefore is not obligated to accept assignment on all claims. See Participating Physician, Participating Physician and Supplier Program.

Outcome: The consequence of a medical intervention on a group of patients.

Overvalued Procedures: Procedures whose prevailing charges were reduced by OBRA 86 or OBRA 87 because they were considered "overvalued" by historical CPR.

Part A (Medicare): The Hospital Insurance program, which covers the cost of hospital and related post-hospital services. As an entitlement program, it is available without payment of a premium. Beneficiaries are responsible for an initial deductible per spell of illness, and coinsurance for some services.

Part B (Medicare): The Supplementary Medical Insurance program (SMI), covers the costs of physician services, outpatient laboratory and X-ray tests, durable medical equipment, outpatient hospital care, and certain other services. As a voluntary program, Part B requires payment of a monthly premium. Beneficiaries are responsible for a deductible and coinsurance payment for most covered services. See Beneficiary.

Participating Physician: A physician who signs a participation agreement, agreeing to accept assignment on all Medicare claims for one year.

Participating Physician and Supplier Program (PAR): A program which provides financial and administrative incentives for physicians and suppliers to agree in advance to accept assignment on all Medicare claims for a one-year period.

Peer Review Organization (PRO): Organizations contracting with HCFA to review the medical necessity and the quality of care provided to Medicare beneficiaries. Formally titled Utilization and Quality Control Peer Review Organization.

Physicians Practice Cost and Income Survey (PPCIS): A survey of a national sample of physicians regarding practice characteristics, cost, and reimbursement, conducted by National Opinion Research Center (NORC) in 1984 with a follow-up in 1987. Sponsored by HCFA and ASPE.

Physician-Supervised Diagnostic Services: Tests to diagnose specific medical problems that involve a large technical component and relatively little physician involvement.

Practice Costs: The costs of all nonphysician inputs of medical services.

Practice Cost Percentage: The percentage of physician gross revenue devoted to practice costs.

Practice Guidelines: Clinical recommendations for patient care, based on knowledge of effectiveness of medical practices and procedures.

Practitioner: One who practices medicine; under Medicare, practitioners may include physicians, chiropractors, optometrists, dentists, podiatrists, and physician's assistants.

Premium: An amount paid periodically to purchase medical insurance benefits; for Medicare Part B services in 1989, beneficiaries must pay a premium of $27.90 per month (not including the premium for catastrophic coverage).

Prepayment Screen: A computerized edit of claims information intended to identify a potential utilization problem, such as excessive hospital visits. Claims that fail these screens or edits are usually reviewed manually by contractor staff to determine whether questioned services were justified.

Prevailing Charge: One of the factors determining a physician's payment for a service under Medicare. Currently set at the 75th percentile of customary charges of all physicians in the locality. Since 1976, its growth has been limited to the increase in the Medicare Economic Index (MEI). See Customary Charge; Customary, Prevailing, and Reasonable; Medicare Economic Index.

Procedure Coding: See Coding.

Qualified Medicare Beneficiary: A Medicare beneficiary with income below the federal poverty line who receives any Medicaid benefits.

Qualified Medicare Beneficiary-only: A Medicare beneficiary with income below the federal poverty line who receives Medicaid payment for Medicare cost-sharing expenses, but who does not receive other Medicaid benefits.

Receivables: The total of the Medicare allowed amount plus the balance bill.

Reduction: See Charge Reduction.

Relative Value Scale (RVS): Index that assigns weights to each medical service; the weights represent the relative amount to be paid for each service.

Resource Cost: The costs of the inputs used by an efficient physician to provide a service or procedure, including both the (opportunity) costs of the physician's own time and effort and the costs of non-physician inputs. The apparently redundant use of "resource" with "costs" is a convention used to indicate the average costs of an efficient physician, as distinguished from cost-based reimbursement such as that used for hospitals prior to the Prospective Payment System.

Resource-Based Relative Value Scale (RBRVS): An RVS that is based on resource costs.

Specialty Differential: The difference in the relative value or amount paid for the same service when performed by different specialists.

Staff Model HMO: An HMO in which physicians are generally salaried employees of the HMO. See Health Maintenance Organization.

Supplementary Medical Insurance Program (SMI): See Part B (Medicare).

Supplier: Providers, other than practitioners, of health care services. Suppliers under Medicare include independent labs, durable medical equipment providers, ambulance services, orthotists, prosthetists, and portable X-Ray providers.

The Medicare Fee Schedule: The fee schedule developed by the Commission and proposed for use by Medicare to pay for physician services. This fee schedule is based on resource costs, and composed of factors representing physician work and practice costs.

Upcode: To bill for a service more intense, extensive, or costly than that which was provided.

Usual, Customary, and Reasonable (UCR): A method of establishing payment used by private insurers that is comparable to Medicare's Customary, Prevailing, and Reasonable.

Utilization Review (UR): The review of services delivered by a health care provider or supplier to determine whether these services were medically necessary and appropriate.

BIOGRAPHIES

COMMISSION MEMBERS

PHILIP R. LEE

Philip R. Lee, M.D., Professor of Social Medicine, has served as Director of the Institute for Health Policy Studies at the University of California, San Francisco (UCSF) since 1972. He served as Chancellor of UCSF from 1969 to 1972 and was Assistant Secretary for Health and Scientific Affairs in the Department of Health, Education, and Welfare from 1965 to 1969. Dr. Lee is the author of over 100 articles in the health field, and he has coauthored numerous books. His teaching and research endeavors in the field of health policy focus on health care for the elderly, prescription drugs, physician payment, reproductive health policy, and AIDS-related policies and costs. Dr. Lee is a frequent advisor to federal, state, and local health policy makers, and he serves on the boards of a number of nonprofit organizations. In July 1986, he was appointed Chairman of the Physician Payment Review Commission.

JIM BOB BRAME

Jim Bob Brame, M.D., is a family physician practicing in Eldorado, Texas. Dr. Brame has been in private practice in rural West Texas for over twenty years. He is a graduate of the Tulane University School of Medicine. Dr. Brame's career-long interest has been in improving the quality of health care available in rural areas. He has assisted in the design and implementation of a prototype rural health facility in West Texas and helped establish rural health clinics in Guatemala. He also has served as a physician representative to the American Hospital Association's Governing Council on Small or Rural Hospitals and Committee on Medical Staff Affairs. Dr. Brame is a member of the National Rural Health Association and has served on the Board of Directors of the Texas Medical Foundation (PRO). Dr. Brame was also a past president of the Texas Medical Association (TMA). He has served on several TMA committees, including the Committee on Health Care of the Poor, the Committee on Health Planning, and the Council on Health Facilities. Dr. Brame is a member of the Texas Academy of Family Physicians, and has served on their Board of Directors. As a member of the American Academy of Family physicians, he has served on their Commission on Health Care Services. Currently, Dr. Brame is an associate clinical professor at the Texas Technical Health Services Center.

ROBERT N. BUTLER

Robert N. Butler, M.D., has been Brookdale Professor and Chairman of the Gerald and May Ellen Ritter Department of Geriatrics and Adult Development at Mount Sinai Medical Center since 1982. He is a graduate of the Columbia University College of Physicians and Surgeons. Dr. Butler came to Mount Sinai from the National Institutes of Health, where he served as the first director of the National Institute on Aging. Some of the achievements resulting from his efforts to improve the quality of life for people over 65 include the development of geriatrics research and education, establishment of research programs for the study of Alzheimer's disease, and creation of the teaching nursing home concept and grant program. Dr. Butler won the Pulitzer Prize in 1976 for his book, *Why Survive? Being Old in America*. He is editor-in-chief of *Geriatrics*, a journal for primary care physicians, and serves on the editorial board of several other professional publications. Dr. Butler is also Editor of the Long Life Series, Ballantine Books, and often consults for television and radio. Dr. Butler is a member of the Institute of Medicine of the National Academy of Sciences, and a founding Fellow of the American Geriatrics Society. He has served as consultant to the United States Senate Special Committee on Aging, the National Institute of Mental Health, the Commonwealth Fund, the Brookdale Foundation, and numerous other organizations.

P. WILLIAM CURRERI

P. William Curreri, M.D., is President of Strategem of Alabama, Inc. and Executive Vice President of Strategem, Inc., an international marketing and consulting firm in the health care field. He received his undergaduate education at Swarthmore College and his medical degree from the University of Pennsylvania. His surgical residency was completed at the Hospital of the University of Pennsylvania. After four years in the U.S. Army as a Lieutenant Colonel at Brooke Army Medical Center, he served on the faculty of the University of Washington School of Medicine in Seattle (1974-77) and was named the Johnson & Johnson Professor of Surgery while on the faculty of Cornell Medical Center in New York (1977-81). Dr. Curreri served as Professor and Chairman and Chief of Surgery at the University of South Alabama in Mobile (1981-88). A member of numerous professional societies and organizations, Dr. Curreri has a history of distinguished leadership having served as President of the American Burn Association, the Society of University Surgeons, The Halsted Society, and is President-Elect of The American Association for the Surgery of Trauma. A major contributor to surgical literature, Dr. Curreri also serves as a consultant to the *Journal of Trauma* and the Advisory Board of the *Journal of Burn Care and Rehabilitation*, *Annales Chirurgiae Et Gynaecologiae*, and the *Journal of Clinical Surgery*. He is the Editor-In-Chief of The American Surgeon. Dr. Curreri has been a frequent adivsor to the National Institutes of Health. He was a member of the Surgery, Anesthesia and Trauma Study Section from 1980-84 and served as Chairman from 1986-88. He is a member of the American Board of Surgery and the Executive Committee of the Board of Governors of the American College of Surgeons. He also serves as Secretary of the Board of Governors of the ACS.

KAREN DAVIS

Karen Davis, Ph.D., is Chairman of the Department of Health Policy and Management in the School of Hygiene and Public Health and has a joint appointment as Professor of Economics, Johns Hopkins University. Positions previously held by Dr. Davis include Deputy Assistant Secretary for Planning and Evaluation/Health at the U.S. Department of Health and Human Services; Administrator of the Public Health Service, Health Resources Administration; Senior Fellow at the Brookings Institution, and Visiting Lecturer at Harvard University. Dr. Davis is Director of The Commonwealth Fund Commission on Elderly People Living Alone. She also serves as Regional Editor USA/Canada for the journal *Health Policy*. In addition, she is a member of the Institute of Medicine, and the National Academy of Sciences, and she serves as a consultant for the World Health Organization, European Regional Office, and sits on several other boards and committees concerned with health policy issues. Dr. Davis is the author of numerous books and articles on health economics and policy analysis including *Medicare Policy: New Directions for Health and Long-Term Care*; *Health and the War on Poverty: A Ten Year Appraisal; National Health Insurance: Benefits, Costs and Consequences*. She holds her Ph.D. in economics from Rice University.

JOHN M. EISENBERG

John M. Eisenberg, M.D., M.B.A., is Sol Katz Professor of General Internal Medicine and Chief of the Section of General Internal Medicine at the University of Pennsylvania. He is a graduate of Washington University School of Medicine, St. Louis. After his residency in internal medicine at the Hospital of the University of Pennsylvania, Dr. Eisenberg was a Robert Wood Johnson Foundation Clinical Scholar and earned a Master of Business Administration degree at the Wharton School. He is now a Senior Fellow of the University of Pennsylvania's Leonard Davis Institute of Health Economics. Dr. Eisenberg is a member of the Board of Governors of the American Board of Internal Medicine and a member of the Council of the Association of Program Directors in Internal Medicine. He has served as president of the Society of General Internal Medicine and as vice-president of the Society for Medical Decision Making. He has served as chairman of the Council of Medical Societies of the American College of Physicians and was a member of its Board of Regents. He is currently a member of the College's Health and Public Policy Committee. Previously, he was a member of the Health Care Technology Study Section of the National Center for Health Services Research. He is a member of the Institute of Medicine, National Academy of Sciences. Dr. Eisenberg has served as a consultant to and member of the editorial boards of several major medical and health policy journals. He is the author of *Doctors' Decisions and the Cost of Medical Care*, and has published over 100 articles and chapters on topics such as physician practice, test use and efficacy, medical education, and clinical economics.

JACK GUILDROY

Jack Guildroy is a member of the Board of Directors of the American Association of Retired Persons (AARP). Previously he served as chairman of the Association's New York State Legislative Committee and on AARP's National Legislative Council. An educator for 37 years until his retirement in 1978, Mr. Guildroy taught mathematics and social studies in secondary schools in New York and Massachusetts. Most of his career was devoted to counselling students at the high school level. A co-founder of the New York State Counselors Association, he was also active in work with the College Board and its Committee on Guidance. He authored articles on the ethical-legal problems of counselors in the *College Board Review* . Mr. Guildroy helped establish the Retired Educators Chapter of the Great Neck Teachers Association and was secretary of the North Nassau Retired Teachers Association. He is a board member of the Friends and Relatives of Institutionalized Aged, Inc. Mr. Guildroy is a graduate of the University of Rochester with a bachelors degree in mathematics and a masters in history. In addition, he has a permanent certificate in counseling from Columbia University Teachers College, and has taken graduate studies at New York University and the New School for Social Research.

MARK C. HORNBROOK

Mark C. Hornbrook, Ph.D. is a Senior Investigator at the Kaiser Permanente Center for Health Research in Portland, Oregon. Dr. Hornbrook also holds part-time academic appointments in the Schools of Nursing and Medicine at the Oregon Health Sciences University. Previously, as a Senior Research Manager in the Division of Intramural Research, National Center for Health Services Research, he was responsible for directing research on hospital case mix, costs, and use. A recognized expert in health care reimbursement systems, case-mix measurement, and cost-benefit and cost-effectiveness analysis, Dr. Hornbrook is currently directing several important studies including analysis of alternative risk-adjustment methods for reimbursing HMOs for Medicare beneficiaries, and methods of prospective payment for physician services and long-term care. In addition, Dr. Hornbrook is directing two major studies of the cost-effectiveness and cost-benefit of innovative health care programs. Dr. Hornbrook serves as a consultant to several Federal agencies including the Office of Technology Assessment, National Center for Health Services Research and Health Care Technology Assessment, Veterans Administration, National Institutes of Health and Health Care Financing Administration. Dr. Hornbrook holds his Ph.D. in medical care organization, with emphasis in health economics, from the University of Michigan.

CAROL ANN LOCKHART

Carol Ann Lockhart, Ph.D., R.N., F.A.A.N., is Executive Director of the Greater Phoenix Affordable Health Care Foundation, an organization comprised of employers, providers and insurers who work together to promote accessible, affordable, quality health care. Dr. Lockhart has held a number of positions in public health both at the local and state level. Most recently she directed policy and program development and licensing for health and day care institutions in the Arizona Department of Health Services. She also served as Acting Director of the Arizona Health Care Cost Containment System (AHCCCS) during the initial months of the program. Dr. Lockhart served on the faculties of the Arizona State University College of Business Administration and the College of Nursing, as well as teaching in other public health and nursing programs. She has coauthored two books on labor relations in health care. Dr. Lockhart is a Fellow of the American Academy of Nursing, and recently received her Ph.D. from the Florence Heller Graduate School for Social Policy, Brandeis University.

WALTER J. MCNERNEY

Walter J. McNerney is the Herman Smith Professor of Health Policy at the J. L. Kellogg Graduate School of Management, Northwestern University and Chairman of Walter J. McNerney and Associates, a management consulting firm in the health field. From 1961 to 1978, Mr. McNerney served as the President of the Blue Cross Association and from 1978 through 1981 served as President of the Blue Cross and Blue Shield Association. Prior to 1961, Mr. McNerney was in hospital and medical center administration and served on the faculties of the Graduate School of Public Health, University of Pittsburgh, and Graduate School of Management, University of Michigan. Given his experience and broad understanding of health care policy issues, Mr. McNerney has been asked to sit on many important boards and committees, such as, Board of Health Care Services, Institute of Medicine, and Advisory Panel on Assessment of Medical Technology, Office of Technology Assessment. Mr. McNerney has published several books, monographs, chapters and articles. He received his master's in hospital administration from the University of Minnesota.

THOMAS R. REARDON

Thomas R. Reardon, M.D., has maintained a busy general practice in Portland, Oregon for nearly 25 years. He is a graduate of the University of Colorado Medical School. Dr. Reardon has been involved in activities on behalf of organized medicine at the county, state and national level. He now represents the AMA Hospital Medical Staff Section at the AMA House of Delegates. In addition, Dr. Reardon has served on the AMA Task Force on Physician Manpower. Prior to his tenure as President of the Multnomah County Medical Society in 1980 to 1981, Dr. Reardon served on several important committees including peer review and grievance. He later held the offices of vice president and president of the Oregon Medical Association (OMA). Dr. Reardon served as chairman of several important committees of the OMA, including the Committees on Private Practice and Hospital Relations, Health Planning, Legislation, Board of Censors and Ethics. In addition to his involvement with organized medicine, Dr. Reardon has assisted his community by serving on various task forces to study health care for the medically indigent. He has maintained an active liaison with the elderly community and participated on Congressman Ron Wyden's task force on Medicare reimbursement.

UWE R. REINHARDT

Uwe R. Reinhardt, Ph.D., is the James Madison Professor of Political Economy at Princeton University where he has been teaching since 1968. He received his Ph.D. in economics from Yale University and an honorary doctorate from the Medical College of Pennsylvania in 1987. Professor Reinhardt is a member of the Washington-based National Leadership Commission on Health. He has served on several councils and task forces, such as the Governing Council of the Institute of Medicine, the National Health Care Technology Council of the Department of Health, Education and Welfare, and the Veterans Administration's Special Medical Advisory Group. He has also served on a number of editorial boards of major health policy and economic journals. Professor Reinhardt is the author of *Physician Productivity and the Demand for Health Manpower*, and numerous articles on health economics, accounting and corporate finance. Among his work in the latter area have been a financial analysis of the Lockheed L-1011 Tri Star, work on a benefit-cost analysis of the Space Shuttle and on pricing strategies for the Space Shuttle. Dr. Reinhardt's consulting activities have included work for the Department of Health and Human Services, Mathematica Policy Research, the Urban Institute, and Econ Incorporated. He has been a consultant in management training, primarily in managerial economics and corporate finance, for several major corporations.

RICHARD W. WRIGHT

Richard W. Wright is Group Insurance Manager, Caterpillar Inc., of Peoria, Illinois. He administers the Group Insurance programs for the U.S. and Canadian operations, including negotiations of contracts with unions, providers, HMOs and insurance carriers. In his current position, Mr. Wright has been instrumental in developing and implementing several major cost containment activities including a joint venture with Boston University's Health Policy Institute, an improved management information system, a high cost case management program, a generic drug substitution program, third party committees with medical societies and concurrent hospital utilization review. Mr. Wright served as vice-chairman of the Illinois State Employee's Group Insurance Advisory Commission for several years. He was also a Pew Fellow in the Center on Industry and Health Care at Boston University.

COMMISSION STAFF

PAUL B. GINSBURG, Ph.D., is the Executive Director of the Commission. He has a long and varied experience with a wide range of health care financing issues, including physician payment, hospital payment, health insurance, and alternative delivery systems. Prior to the creation of the Commission, Dr. Ginsburg was a senior economist at the Rand Corporation, where he led projects on preferred provider organizations, Medicare prospective payment of hospitals, physician payment, and cost containment in employment-based health plans. He was Deputy Assistant Director for Income Security and Health at the Congressional Budget Office, where he prepared analyses for the Congress on federal health policy issues with significant budgetary implications. Dr. Ginsburg has served as an associate professor at Duke University and as an assistant professor at Michigan State University. He earned a doctorate in economics at Harvard University in 1971.

GLENN T. (TERRY) HAMMONS, M.D., is a Deputy Director of the Commission. Dr. Hammons is on leave from the Department of Pathology of the University of Iowa College of Medicine, where he is medical Director of the Clinical Chemistry Laboratories for the University of Iowa Hospitals and Clinics. Dr. Hammons received his medical degree from Washington University, and completed residency and fellowship at Barnes Hospital and Washington University Medical Center in Saint Louis. He also received a masters degree in economics from the Massachusetts Institute of Technology and completed a Pew Fellowship in Health Policy at the Rand Corporation and the University of California at Los Angeles. He has published work in health policy and health services research, cell biology, and clinical medicine. His recent work has focused on health policy.

LAUREN B. LeROY, Ph.D., is a Deputy Director of the Commission. Prior to coming to the Commission, Dr. LeRoy was Associate Director of the Commonwealth Fund Commission on Elderly People Living Alone. Dr. LeRoy served as Assistant Director of the Institute for Health Policy Studies, University of California, San Francisco, and the Director of the Institute's Washington office, after spending several years working on health legislation in the Department of Health, Education, and Welfare in Washington, D.C. Dr. LeRoy is co-author of two books on physician training and practice, including *Primary Care in a Specialized World*, as well as numerous articles and book chapters on physician training, nurse practitioners, the nurse labor market, and aging issues. She has served as an advisor to such groups as the Institute of Medicine, the Office of Technology Assessment, and the California State Health Manpower Advisory Committee. Dr. LeRoy did her graduate study in social policy planning at the University of California, Berkeley.

JILL BERNSTEIN, Ph.D., holds a doctorate and masters in Sociology from Columbia University. She previously worked at the General Accounting Office where she concentrated on issues of quality assessment for Medicare and Medicaid. She also served as a Senior Analyst for Advanced Technology Inc. in the area of quality assurance in student financial aid programs. At PPRC, she focuses on organizational issues relating to expenditure targets, carrier and peer review organization utilization and quality review, peer review organizations, and assignment and related beneficiary issues.

DAVID COLBY, Ph.D., holds a doctorate in Political Science from the University of Illinois. He is on leave from the Policy of Sciences Program at the University of Maryland Graduate School, Baltimore, where he is an associate professor. Previously he worked at Williams College where he was an Assistant Dean of the College and an Assistant Professor of Political Science. He was also a Robert Wood Johnson Health Finance Fellow in 1986. At PPRC he has developed simulations to study the impact of alternative fee schedules on both physicians and beneficiaries as part of the Commission's evaluation of the Hsiao Resource-Based Relative Value Scale and development of fee schedule.

JANET M. CORRIGAN, Ph.D., holds a doctorate in Health Services Organization and Policy and a Master of Engineering from the University of Michigan. She has also completed graduate programs in community health and business at the University of Rochester. She previously worked at Upstate Health System, Inc., and the Rochester Area Hospitals' Corporation in Rochester, New York in the areas of clinical management, information systems, and special project administration. At PPRC she focuses on capitation and information systems planning. She also coordinates the study of expenditure targets.

JOSE J. ESCARCE, M.D., received a masters degree in physics from Harvard University and a medical degree from the University of Pennsylvania. Following his residency in internal medicine, he practiced for two years before returning to the University of Pennsylvania to pursue his doctoral studies in health economics. As a part-time member of the PPRC staff, he has focused on developing a plan to monitor access, describing geographic variations in volume of care, and assessing alternatives for making geographic adjustments to the fee schedule.

HERSCHEL GOLDFIELD holds a Master of Science degree in Health Policy and Management from the Harvard School of Public Health. He previously worked as an analyst at the Boston Committee on Access to Health Care, as an Assistant to the Director of the New England Injury Prevention Research Center, and as a research associate for the National Hospital Rate Setting Study at Abt Associates, Inc., Cambridge, Massachusetts. At PPRC he has focused on practice costs, reimbursement of diagnostic services, and rural health care issues.

DAVID JUBA holds a Bachelors degree in both mathematics and social sciences and a Master of Public Administration degree from the Ohio State University. For the past ten years he has conducted empirical research on hospital and physician reimbursement policy at Carnegie-Mellon University, Policy Analysis Incorporated, The Urban Institute, and Abt Associates Incorporated. At PPRC he is working on simulating the possible effects of a fee schedule on physicians and beneficiaries. He also monitors the Commission's extramural computer programming activities and has served as the principal investigator on the analysis of geographic variation in Medicare charges and the development of Medicare data bases.

ROZ DIANE LASKER, M.D., received her medical degree from the University of Pittsburgh School of Medicine. Following her residency in internal medicine, she completed a fellowship in endocrinology and metabolism at the National Institutes of Health. Dr. Lasker is a fellow of the American College of Physicians and was previously on the faculty of the University of Vermont College of Medicine. Since joining PPRC, she has focused on the standardization of surgical global services, coding for evaluation and management services, geographic variation, and evaluation of the Hsiao study.

SHERAN ESTES MCMANUS serves as the administrative officer of the Commission. Having received a B.A. from the University of Maryland, she continued her studies at the George Washington University. She previously worked as Executive Associate of the George Washington University's National Health Policy Forum and in various capacities under the Department of Health and Human Services. At the Commission, she is responsible for the administrative and financial aspects of its operation.

MAUREEN MOLLOY holds a Masters degree in Public Health with a concentration in Health Policy and Management from Johns Hopkins University. She is also a registered nurse with ten years hospital experience in cardiology. Previously, she was the Information Programs Manager for the National Association of Children's Hospitals and Related Institutions. At PPRC, she has focused on standardization of surgical global services, beneficiary access to care, and evaluation of the Hsiao study.

ANN MONGOVEN received a Bachelors in Public Affairs from Princeton University. Her work at PPRC has focused on issues related to assignment, standardization of surgical global services, simulations of the effect of standardization of surgical global services, and surveys of beneficiaries and carriers.

CURT D. MUELLER, Ph.D., holds a doctorate in economics from the University of North Carolina, Chapel Hill. He previously worked as an economist at the National Center for Health Services Research and in the Department of Public Administration, Syracuse University. His responsibilities at the National Center included design of the Institutional Population Component of the 1987 National Medical Expenditure Survey and health services research using survey data. At PPRC, his work has focused on practice costs.

JONATHAN SUNSHINE, Ph.D., an economist specializing in health policy and analysis, holds a doctorate from Columbia University and also studied at Oxford and Harvard. He has previously worked as an independent consultant, and with the U.S. Office of Management and Budget (OMB) and the Veterans Administration (VA).

Among his areas of work are health cost containment, PPOs and other alternative delivery systems, finance of health organizations, VA health programs, and analysis of health data. At PPRC, he has focused on the quantitative and financial aspects of expenditure targets including geographic disparity in volume of services received and physician assignment and participation policy.

JULIE SWARTZMAN received a bachelors degree in Biology from Brown University where she is a member of the eight year Medical Education Program. At PPRC, she has focused on trends in Part B utilization of services and the characteristics of beneficiaries and their out-of-pocket spending.

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